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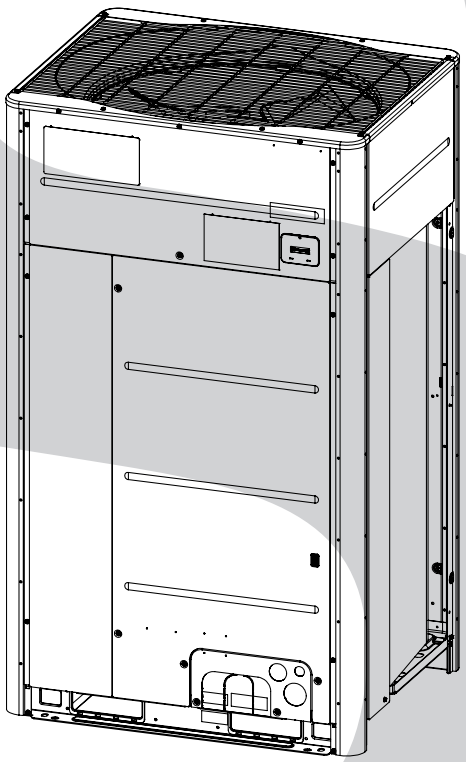
AIR CONDITIONER (MULTI TYPE)

SERVICE MANUAL

< Super Heat Recovery Multi System SHRM ADVANCE >

Outdoor

MMY-SUG0801MT8(J)P-E	**MMY-SUG0801MT8P-A**
MMY-SUG1001MT8(J)P-E	**MMY-SUG1001MT8P-A**
MMY-SUG1201MT8(J)P-E	**MMY-SUG1201MT8P-A**
MMY-SUG1401MT8(J)P-E	**MMY-SUG1401MT8P-A**
MMY-SUG1601MT8(J)P-E	**MMY-SUG1601MT8P-A**
MMY-SUG1801MT8(J)P-E	**MMY-SUG1801MT8P-A**
MMY-SUG2001MT8(J)P-E	**MMY-SUG2001MT8P-A**
MMY-SUG2201MT8(J)P-E	**MMY-SUG2201MT8P-A**
MMY-SUG2401MT8(J)P-E	**MMY-SUG2401MT8P-A**



Revised on May, 2023

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This service manual provides relevant explanations about new outdoor unit (SHRM ADVANCE). Please refer to the following service manuals for each indoor units.

Model name	SVM File No.
<4-Way Cassette Type> MMU-UP***1HP-E/-TR (Made in Thailand model) MMU-UP***1H-E/-TR (Made in Japan model)	 SVM-20095 A10-2004
<Compact 4-Way Cassette Type> MMU-UP***1MH-E/-TR (Made in Japan model)	 A10-2004
<2-Way Cassette Type> MMU-UP***1WH-E/-TR (Made in Japan model)	 A10-2004
<1-Way Cassette Type> MMU-UP***1SH-E/-TR (Made in Japan model) MMU-UP***1YHP-E/-TR (Made in Thailand model)	 A10-2004 SVM-20107
<Concealed Duct Standard Type> MMD-UP***1BHP-E/-TR (Made in Thailand model)	 SVM-20095
<Concealed Duct High Static Pressure Type> MMD-UP***1HP-E/-TR (Made in Thailand model)	 SVM-20095
<Slim Duct Type> MMD-UP***1SPHY-E (Made in China model)	 A10-2006
<Under Ceiling Type> MMC-UP***1HP-E/-TR (Made in Thailand model)	 SVM-20095
<Fresh Air Intake Indoor Unit> MMD-UP***1HFP-E/-TR (Made in Thailand model)	 SVM-20095
<Air to Air Heat Exchanger with DX Coil Unit>	
<High Wall Type> MMK-UP***1HP-E/-TR (Made in Thailand model) MMK-UP***1HPL-E (Made in Thailand model)	 SVM-20095 SVM-20095
<Hot Water Module Mid Temperature Type> MMW-UP***1LQ-E/-TR (Made in Japan model)	 A10-2005

The lineups of SHRM Advance for Heat recovery and Heat pump are below.

Model name	System			
	Europe		Oceania	
MMY-SUG0801*	Heat recovery	Heat pump	Heat recovery	Heat pump
MMY-SUG1001*				
MMY-SUG1201*				
MMY-SUG1401*				
MMY-SUG1601*				
MMY-SUG1801*				
MMY-SUG2001*				
MMY-SUG2201*				
MMY-SUG2401*				

SAFETY CAUTION

Please read carefully through these instructions that contain important information which complies with the "Machinery" Directive (Directive 2006/42/EC), and ensure that you understand them.

Generic Denomination: Air Conditioner

Definition of Qualified Installer or Qualified Service Person

The air conditioner must be installed, maintained, repaired and removed by a qualified installer or qualified service person. When any of these jobs is to be done, ask a qualified installer or qualified service person to do them.
A qualified installer or qualified service person is an agent who has the qualifications and knowledge described in the table below.

Agent	Qualifications and knowledge which the agent must have
Qualified installer (*1)	• The qualified installer is a person who installs, maintains, relocates and removes the air conditioners made by Toshiba Carrier Corporation. He or she has been trained to install, maintain, relocate and remove the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such operations by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to these operations. • The qualified installer who is allowed to do the electrical work involved in installation, relocation and removal has the qualifications pertaining to this electrical work as stipulated by the local laws and regulations, and he or she is a person who has been trained in matters relating to electrical work on the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work. • The qualified installer who is allowed to do the refrigerant handling and piping work involved in installation, relocation and removal has the qualifications pertaining to this refrigerant handling and piping work as stipulated by the local laws and regulations, and he or she is a person who has been trained in matters relating to refrigerant handling and piping work on the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work. • The qualified installer who is allowed to work at heights has been trained in matters relating to working at heights with the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work.
Qualified service person (*1)	• The qualified service person is a person who installs, repairs, maintains, relocates and removes the air conditioners made by Toshiba Carrier Corporation. He or she has been trained to install, repair, maintain, relocate and remove the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such operations by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to these operations. • The qualified service person who is allowed to do the electrical work involved in installation, repair, relocation and removal has the qualifications pertaining to this electrical work as stipulated by the local laws and regulations, and he or she is a person who has been trained in matters relating to electrical work on the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work. • The qualified service person who is allowed to do the refrigerant handling and piping work involved in installation, repair, relocation and removal has the qualifications pertaining to this refrigerant handling and piping work as stipulated by the local laws and regulations, and he or she is a person who has been trained in matters relating to refrigerant handling and piping work on the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work. • The qualified service person who is allowed to work at heights has been trained in matters relating to working at heights with the air conditioners made by Toshiba Carrier Corporation or, alternatively, he or she has been instructed in such matters by an individual or individuals who have been trained and is thus thoroughly acquainted with the knowledge related to this work.

Definition of Protective Gear

When the air conditioner is to be transported, installed, maintained, repaired or removed, wear protective gloves and 'safety' work clothing.
In addition to such normal protective gear, wear the protective gear described below when undertaking the special work detailed in the table below.
Failure to wear the proper protective gear is dangerous because you will be more susceptible to injury, burns, electric shocks and other injuries.

Work undertaken	Protective gear worn
All types of work	Protective gloves 'Safety' working clothing
Electrical-related work	Gloves to provide protection for electricians Insulating shoes Clothing to provide protection from electric shock
Work done at heights (50 cm or more)	Helmets for use in industry
Transportation of heavy objects	Shoes with additional protective toecap
Repair of outdoor unit	Gloves to provide protection for electricians

The important contents concerned to the safety are described on the product itself and on this Service Manual.
Please read this Service Manual after understanding the described items thoroughly in the following contents (Indications / Illustrated marks), and keep them.

[Explanation of indications]

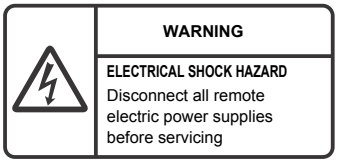
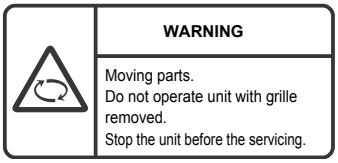
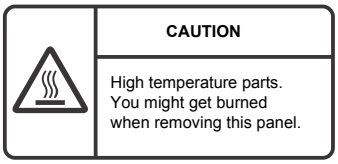
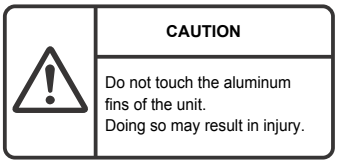
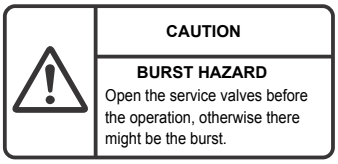
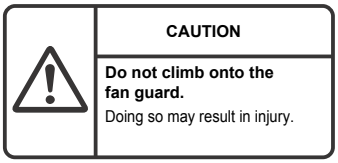
Indication	Explanation
⚠ **DANGER**	Indicates contents assumed that an imminent danger causing a death or serious injury of the repair engineers and the third parties when an incorrect work has been executed.
⚠ **WARNING**	Indicates possibilities assumed that a danger causing a death or serious injury of the repair engineers, the third parties, and the users due to troubles of the product after work when an incorrect work has been executed.
⚠ **CAUTION**	Indicates contents assumed that an injury or property damage (*) may be caused on the repair engineers, the third parties, and the users due to troubles of the product after work when an incorrect work has been executed.

* Property damage: Enlarged damage concerned to property, furniture, and domestic animal / pet

[Explanation of illustrated marks]

Indication	Explanation
	Indicates prohibited items (Forbidden items to do) The sentences near an illustrated mark describe the concrete prohibited contents.
	Indicates mandatory items (Compulsory items to do) The sentences near an illustrated mark describe the concrete mandatory contents.
	Indicates cautions (Including danger / warning) The sentences or illustration near or in an illustrated mark describe the concrete cautious contents.

■ Warning indications on the air conditioner unit

Warning indication	Description
	**WARNING** **ELECTRICAL SHOCK HAZARD** Disconnect all remote electric power supplies before servicing.
	**WARNING** Moving parts. Do not operate unit with grille removed. Stop the unit before the servicing.
	**CAUTION** High temperature parts. You might get burned when removing this panel.
	**CAUTION** Do not touch the aluminium fins of the unit. Doing so may result in injury.
	**CAUTION** **BURST HAZARD** Open the service valves before the operation, otherwise there might be the burst.
	**CAUTION** **Do not climb onto the fan guard.** Doing so may result in injury.

	**WARNING** (Risk of fire)
	Read the OWNER'S MANUAL carefully before operation.
	Service personnel are required to carefully read the OWNER'S MANUAL and INSTALLATION MANUAL before operation.
	Further information is available in the OWNER'S MANUAL, INSTALLATION MANUAL, and the like.

PRECAUTIONS FOR SAFETY

The manufacturer shall not assume any liability for the damage caused by not observing the description of this manual.

⚠ DANGER

Turn off breaker	Before carrying out the installation, maintenance, repair or removal work, be sure to set the circuit breaker for both the indoor and outdoor units to the OFF position. Otherwise, electric shocks may result.
	Before opening the intake grille of the indoor unit or service panel of the outdoor unit, set the circuit breaker to the OFF position. Failure to set the circuit breaker to the OFF position may result in electric shocks through contact with the interior parts. Only a qualified installer (*1) or qualified service person (*1) is allowed to remove the intake grille of the indoor unit or service panel of the outdoor unit and do the work required.
	Before opening the electric box cover set the circuit breaker to the OFF position. Failure to set the circuit breaker to the OFF position may result in injury through contact with the rotation parts. Only a qualified installer (*1) or qualified service person (*1) is allowed to remove the electric box cover and do the work required.
	Before starting to repair the outdoor unit fan or fan guard, be absolutely sure to set the circuit breaker to the OFF position, and place a “Work in progress” sign on the circuit breaker.
	When cleaning the filter or other parts of the indoor unit, set the circuit breaker to OFF without fail, and place a “Work in progress” sign near the circuit breaker before proceeding with the work.
	When you have noticed that some kind of trouble (such as when a check code display has appeared, there is a smell of burning, abnormal sounds are heard, the air conditioner fails to cool or heat or water is leaking) has occurred in the air conditioner, do not touch the air conditioner yourself but set the circuit breaker to the OFF position, and contact a qualified service person. Take steps to ensure that the power will not be turned on (by marking “out of service” near the circuit breaker, for instance) until qualified service person arrives. Continuing to use the air conditioner in the trouble status may cause mechanical problems to escalate or result in electric shocks or other failure.
Electric shock hazard	When you access inside of the electric cover to repair electric parts, wait for about five minutes after turning off the breaker. Do not start repairing immediately. Otherwise you may get electric shock by touching terminals of high-voltage capacitors. Natural discharge of the capacitor takes about five minutes.
	When checking the electric parts, removing the cover of the electric parts box of indoor unit and/or service panel of outdoor unit inevitably to determine the failure, use gloves to provide protection for electricians, insulating shoes, clothing to provide protection from electric shock and insulating tools. Be careful not to touch the live part. Electric shock may result. Only “Qualified service person” is allowed to do this work.
Prohibition	Place a “Work in progress” sign near the circuit breaker while the installation, maintenance, repair or removal work is being carried out. There is a danger of electric shocks if the circuit breaker is set to ON by mistake.
	When checking the electric parts, removing the cover of the electric parts box of Indoor Unit and/or front panel of outdoor unit inevitably to determine the failure, put a sign “Do not enter” around the site before the work. Failure to do this may result in third person getting electric shock.
	Before operating the air conditioner after having completed the work, check that the electrical parts box cover of the indoor unit and service panel of the outdoor unit are closed, and set the circuit breaker to the ON position. You may receive an electric shock if the power is turned on without first conducting these checks.
Stay on protection	If, in the course of carrying out repairs, it becomes absolutely necessary to check out the electrical parts with the electrical parts box cover of one or more of the indoor units and the service panel of the outdoor unit removed in order to find out exactly where the trouble lies, wear insulated heat-resistant gloves, insulated boots and insulated work overalls, and take care to avoid touching any live parts. You may receive an electric shock if you fail to heed this warning. Only qualified service person (*1) is allowed to do this kind of work.

(*1) Refer to the “Definition of Qualified Installer or Qualified Service Person”

⚠ WARNIG

General	Before starting to repair the air conditioner, read carefully through the Service Manual, and repair the air conditioner by following its instructions.
	Only qualified service person (*1) is allowed to repair the air conditioner. Repair of the air conditioner by unqualified person may give rise to a fire, electric shocks, injury, water leaks and / or other problems.
	Do not use any refrigerant different from the one specified for complement or replacement. Otherwise, abnormally high pressure may be generated in the refrigeration cycle, which may result in a failure or explosion of the product or an injury to your body.
	Only a qualified installer (*1) or qualified service person (*1) is allowed to carry out the electrical work of the air conditioner. Under no circumstances must this work be done by an unqualified individual since failure to carry out the work properly may result in electric shocks and / or electrical leaks.
	When the air conditioner is to be transported, installed, maintained, repaired or removed, wear protective gloves and 'safety' work clothing.
	To connect the electrical wires, repair the electrical parts or undertake other electrical jobs, wear gloves to provide protection for electricians, insulating shoes and clothing to provide protection from electric shocks. Failure to wear this protective gear may result in electric shocks.
	Electrical wiring work shall be conducted according to law and regulation in the community and Installation Manual. Failure to do so may result in electrocution or short circuit.
	Use wiring that meets the specifications in the Installation Manual and the stipulations in the local regulations and laws. Use of wiring which does not meet the specifications may give rise to electric shocks, electrical leakage, smoking and/or a fire.
	Only a qualified installer (*1) or qualified service person (*1) is allowed to undertake work at heights using a stand of 50 cm or more or to remove the intake grille of the indoor unit to undertake work.
	When working at heights, use a ladder which complies with the ISO 14122 standard, and follow the procedure in the ladder's instructions. Also wear a helmet for use in industry as protective gear to undertake the work.
	Before working at heights, put a sign in place so that no-one will approach the work location, before proceeding with the work. Parts and other objects may fall from above, possibly injuring a person below. While carrying out the work, wear a helmet for protection from falling objects.
	When executing address setting, test run, or troubleshooting through the checking window on the electric parts box, put on insulated gloves to provide protection from electric shock. Otherwise you may receive an electric shock.
	Do not touch the aluminum fin of the unit. You may injure yourself if you do so. If the fin must be touched for some reason, first put on protective gloves and safety work clothing, and then proceed.
	Do not climb onto or place objects on top of the outdoor unit. You may fall or the objects may fall off the outdoor unit and result in injury.
	Use forklift truck to carry in the air conditioner units and use winch or hoist at installation of them.
	When transporting the air conditioner, wear shoes with protective toecap.
	When transporting the air conditioner, do not take hold of the bands around the packing carton. You may injure yourself if the bands break.
	Be sure that a heavy unit (10 kg or heavier) such as a compressor is carried by four persons.
Check earth wires.	Before troubleshooting or repair work, check the earth wire is connected to the earth terminals of the main unit, otherwise an electric shock is caused when a leak occurs. If the earth wire is not correctly connected, contact an electric engineer for rework.
	After completing the repair or relocation work, check that the earth wires are connected properly.
	Connect earth wire. (Grounding work) Incomplete earthing causes an electric shock. Do not connect earth wires to gas pipes, water pipes, and lightning rods or earth wires for telephone wires.

(*1) Refer to the "Definition of Qualified Installer or Qualified Service Person"

 Prohibition of modification.	Do not modify the products. Do not also disassemble or modify the parts. It may cause a fire, electric shock or injury.
 Use specified parts.	When any of the electrical parts are to be replaced, ensure that the replacement parts satisfy the specifications given in the Service Manual (or use the parts contained on the parts list in the Service Manual). Use of any parts which do not satisfy the required specifications may give rise to electric shocks, smoking and / or a fire.
 Do not bring a child close to the equipment.	If, in the course of carrying out repairs, it becomes absolutely necessary to check out the electrical parts with the electrical parts box cover of one or more of the indoor units and the service panel of the outdoor unit removed in order to find out exactly where the trouble lies, put a sign in place so that no-one will approach the work location before proceeding with the work. Third-party individuals may enter the work site and receive electric shocks if this warning is not heeded.
 Insulating measures	Connect the cut-off lead wires with crimp contact, etc., put the closed end side upward and then apply a water cut method, otherwise a leak or production of fire is caused at the users' side.
 No fire	When performing repairs using a gas burner, replace the refrigerant with nitrogen gas because the oil that coats the pipes may otherwise burn. When repairing the refrigerating cycle, take the following measures. 1) Be attentive to fire around the cycle. When using a gas stove, etc., be sure to put out fire before work; otherwise the oil mixed with refrigerant gas may catch fire. 2) Do not use a brazing in the closed room. When using it without ventilation, carbon monoxide poisoning may be caused. 3) Do not bring inflammables close to the refrigerant cycle, otherwise fire of the brazing may catch the inflammables.
 Refrigerant	The refrigerant used by this air conditioner is the R32.
	Check the used refrigerant name and use tools and materials of the parts which match with it. For the products which use R32 refrigerant, the refrigerant name is indicated at a position on the outdoor unit where is easy to see. To prevent miss charging, the route of the service port is changed from one of the former R22.
	Do not use any refrigerant different from the one specified for complement or replacement. Otherwise, abnormally high pressure may be generated in the refrigeration cycle, which may result in a failure or explosion of the product or an injury to your body.
	For an air conditioner which uses R32, never use other refrigerant than R32. For an air conditioner which uses other refrigerant (R22, etc.), never use R32. If different types of refrigerant are mixed, abnormal high pressure generates in the refrigerating cycle and an injury due to breakage may be caused.
	When the air conditioner has been installed or relocated, follow the instructions in the Installation Manual and purge the air completely so that no gases other than the refrigerant will be mixed in the refrigerating cycle. Failure to purge the air completely may cause the air conditioner to malfunction.
	Do not charge refrigerant additionally. If charging refrigerant additionally when refrigerant gas leaks, the refrigerant composition in the refrigerating cycle changes resulted in change of air conditioner characteristics or refrigerant over the specified standard amount is charged and an abnormal high pressure is applied to the inside of the refrigerating cycle resulted in cause of breakage or injury. Therefore if the refrigerant gas leaks, recover the refrigerant in the air conditioner, execute vacuuming, and then newly recharge the specified amount of liquid refrigerant. In this time, never charge the refrigerant over the specified amount.
	When recharging the refrigerant in the refrigerating cycle, do not mix the refrigerant or air other than R410A into the specified refrigerant. If air or others is mixed with the refrigerant, abnormal high pressure generates in the refrigerating cycle resulted in cause of injury due to breakage.
	After installation work, check the refrigerant gas does not leak. If the refrigerant gas leaks in the room, poisonous gas generates when gas touches to fire such as fan heater, stove or cooking stove though the refrigerant gas itself is innocuous.
	Never recover the refrigerant into the outdoor unit. When the equipment is moved or repaired, be sure to recover the refrigerant with recovering device. The refrigerant cannot be recovered in the outdoor unit; otherwise a serious accident such as breakage or injury is caused.

Assembly / Wiring	After repair work, surely assemble the disassembled parts, and connect and lead the removed wires as before. Perform the work so that the cabinet or panel does not catch the inner wires. If incorrect assembly or incorrect wire connection was done, a disaster such as a leak or fire is caused at user's side.
Insulator check	After the work has finished, be sure to use an insulation tester set (500VMΩ) to check the resistance is 1 MΩ or more between the charge section and the non-charge metal section (Earth position). If the resistance value is low, a disaster such as a leak or electric shock is caused at user's side.
Ventilation	When the refrigerant gas leaks during work, execute ventilation. If the refrigerant gas touches to a fire, poisonous gas generates. A case of leakage of the refrigerant and the closed room full with gas is dangerous because a shortage of oxygen occurs. Be sure to execute ventilation.
	If refrigerant gas has leaked during the installation work, ventilate the room immediately. If the leaked refrigerant gas comes in contact with fire, noxious gas may generate.
	After installation work, check the refrigerant gas does not leak. If the refrigerant gas leaks in the room, poisonous gas generates when gas touches to fire such as fan heater, stove or cooking stove though the refrigerant gas itself is innocuous.
Compulsion	When the refrigerant gas leaks, find out the leaked position and repair it surely. If the leaked position cannot be found out and the repair work is interrupted, reclaim and tighten the service valve, otherwise the refrigerant gas may leak into the room. The poisonous gas generates when gas touches to fire such as fan heater, stove or cooking stove though the refrigerant gas itself is innocuous. When installing equipment which includes a large amount of charged refrigerant in a sub-room, it is necessary that the concentration does not the limit even if the refrigerant leaks. If the refrigerant leaks and exceeds the limit concentration, an accident of shortage of oxygen is caused.
	Tighten the flare nut with a torque wrench in the specified manner. Excessive tighten of the flare nut may cause a crack in the flare nut after a long period, which may result in refrigerant leakage.
	Nitrogen gas must be used for the airtight test.
	The charge hose must be connected in such a way that it is not slack.
	For the installation / moving / reinstallation work, follow to the Installation Manual. If an incorrect installation is done, a trouble of the refrigerating cycle, water leak, electric shock or fire is caused.
Check after repair	Once the repair work has been completed, check for refrigerant leaks, and check the insulation resistance and water drainage. Then perform a trial run to check that the air conditioner is running properly.
	After repair work has finished, check there is no trouble. If check is not executed, a fire, electric shock or injury may be caused. For a check, turn off the power breaker.
	After repair work (installation of front panel and cabinet) has finished, execute a test run to check there is no generation of smoke or abnormal sound. If check is not executed, a fire or an electric shock is caused. Before test run, install the front panel and cabinet.
	Be sure to fix the screws back which have been removed for installation or other purposes.
Do not operate the unit with the valve closed.	Check the following matters before a test run after repairing piping. • Connect the pipes surely and there is no leak of refrigerant. • The valve is opened. Running the compressor under condition that the valve closes causes an abnormal high pressure resulted in damage of the parts of the compressor and etc. and moreover if there is leak of refrigerant at connecting section of pipes, the air is sucked and causes further abnormal high pressure resulted in burst or injury.
Check after reinstallation	Only a qualified installer (*1) or qualified service person (*1) is allowed to relocate the air conditioner. It is dangerous for the air conditioner to be relocated by an unqualified individual since a fire, electric shocks, injury, water leakage, noise and / or vibration may result.
	Check the following items after reinstallation. 1) The earth wire is correctly connected. 2) The power cord is not caught in the product. 3) There is no inclination or unsteadiness and the installation is stable. If check is not executed, a fire, an electric shock or an injury is caused.
	When carrying out the reclaim work shut down the compressor before disconnecting the refrigerant pipe. Disconnecting the refrigerant pipe with the service valve left open and the compressor still operating will cause air, etc. to be sucked in, raising the pressure inside the refrigeration cycle to an abnormally high level, and possibly resulting in rupture, injury, etc.

(*1) Refer to the "Definition of Qualified Installer or Qualified Service Person"

Cooling check	When the service panel of the outdoor unit is to be opened in order for the compressor or the area around this part to be repaired immediately after the air conditioner has been shut down, set the circuit breaker to the OFF position, and then wait at least 10 minutes before opening the service panel. If you fail to heed this warning, you will run the risk of burning yourself because the compressor pipes and other parts will be very hot to the touch. In addition, before proceeding with the repair work, wear the kind of insulated heat-resistant gloves designed to protect electricians.
	Take care not to get burned by compressor pipes or other parts when checking the cooling cycle while running the unit as they get heated while running. Be sure to put on gloves providing protection for heat.
	When the service panel of the outdoor unit is to be opened in order for the fan motor, inverter or the areas around these parts to be repaired immediately after the air conditioner has been shut down, set the circuit breaker to the OFF position, and then wait at least 10 minutes before opening the service panel. If you fail to heed this warning, you will run the risk of burning yourself because the fan motor, reactor, inverter heat sink and other parts will be very hot to the touch. In addition, before proceeding with the repair work, wear the kind of insulated heat-resistant gloves designed to protect electricians.
Installation	Only a qualified installer or service person is allowed to do installation work. Inappropriate installation may result in water leakage, electric shock or fire.
	Before starting to install the air conditioner, read carefully through the Installation Manual, and follow its instructions to install the air conditioner.
	Be sure to use the company-specified products for the separately purchased parts. Use of non-specified products may result in fire, electric shock, water leakage or other failure. Have the installation performed by a qualified installer.
	Do not supply power from the power terminal block equipped on the outdoor unit to another outdoor unit. Capacity overflow may occur on the terminal block and may result in fire.
	Do not install the air conditioner in a location that may be subject to a risk of expire to a combustible gas. If a combustible gas leaks and becomes concentrated around the unit, a fire may occur.
	Install the indoor unit at least 2.5 m above the floor level since otherwise the users may injure themselves or receive electric shocks if they poke their fingers or other objects into the indoor unit while the air conditioner is running.
	Install a circuit breaker that meets the specifications in the Installation Manual and the stipulations in the local regulations and laws.
	Install the circuit breaker where it can be easily accessed by the agent.
	If you install the unit in a small room, take appropriate measures to prevent the refrigerant from exceeding the limit concentration even if it leaks. Consult the dealer from whom you purchased the air conditioner when you implement the measures. Accumulation of highly concentrated refrigerant may cause an oxygen deficiency accident.
	Do not place any combustion appliance in a place where it is directly exposed to the wind of air conditioner, otherwise it may cause imperfect combustion.

Explanations given to user

If you have discovered that the fan grille is damaged, do not approach the outdoor unit but set the circuit breaker to the OFF position, and contact a qualified service person to have the repairs done.
Do not set the circuit breaker to the ON position until the repairs are completed.

Relocation

- Only a qualified installer (*1) or qualified service person (*1) is allowed to relocate the air conditioner. It is dangerous for the air conditioner to be relocated by an unqualified individual since a fire, electric shocks, injury, water leakage, noise and / or vibration may result.
- When carrying out the reclaim work shut down the compressor before disconnecting the refrigerant pipe. Disconnecting the refrigerant pipe with the service valve left open and the compressor still operating will cause air, etc. to be sucked in, raising the pressure inside the refrigeration cycle to an abnormally high level, and possibly resulting in rupture, injury, etc.

(*1) Refer to the “Definition of Qualified Installer or Qualified Service Person”

Declaration of Conformity

Manufacturer: **Toshiba Carrier (Thailand) Co., Ltd.**
144 / 9 Moo 5, Bangkadi Industrial Park, Tivanon Road, Tambol Bangkadi,
Amphur Muang, Pathumthani 12000, Thailand

TCF holder: TOSHIBA CARRIER EUROPE S.A.S
Route de Thil 01120 Montluel FRANCE

Hereby declares that the machinery described below:

Generic Denomination: Air Conditioner

Model / type: MMY-SUG0801MT8(J)P-E, MMY-SUG1001MT8(J)P-E, MMY-SUG1201MT8(J)P-E,
MMY-SUG1401MT8(J)P-E, MMY-SUG1601MT8(J)P-E, MMY-SUG1801MT8(J)P-E,
MMY-SUG2001MT8(J)P-E, MMY-SUG2201MT8(J)P-E, MMY-SUG2401MT8(J)P-E

Commercial name: Super Heat Recovery Multi Air conditioner

Complies with the provisions of the Machinery Directive (Directive 2006/42/EC) and the regulations transposing into national law

Complies with the provisions of the following harmonized standard: EN 378-2 : 2016

NOTE

This declaration becomes invalid if technical or operational modifications are introduced without the manufacturer's consent.

Declaration of Conformity

Manufacturer: **Toshiba Carrier (Thailand) Co., Ltd.**
144 / 9 Moo 5, Bangkadi Industrial Park, Tivanon Road, Tambol Bangkadi, Amphur Muang, Pathumthani 12000, Thailand

TCF holder: TOSHIBA CARRIER UK Ltd.
Porsham Close Belliver Industrial Estate Roborough Plymouth Devon PL6 7DB United Kingdom

Hereby declares that the machinery described below:

Generic Denomination: Air Conditioner

Model / type: MMY-SUG0801MT8(J)P-E, MMY-SUG1001MT8(J)P-E, MMY-SUG1201MT8(J)P-E, MMY-SUG1401MT8(J)P-E, MMY-SUG1601MT8(J)P-E, MMY-SUG1801MT8(J)P-E, MMY-SUG2001MT8(J)P-E, MMY-SUG2201MT8(J)P-E, MMY-SUG2401MT8(J)P-E

Commercial name: Super Heat Recovery Multi Air conditioner

Complies with the provisions of the Supply of Machinery (Safety) Regulations 2008

Complies with the provisions of the following harmonized standard: EN 378-2 : 2016

NOTE

This declaration becomes invalid if technical or operational modifications are introduced without the manufacturer's consent.

Specifications

Model	Sound power level (dBA)		Weight (kg)
	Cooling	Heating	
MMY-SUG0801MT8(J)P-E	74	77	232
MMY-SUG1001MT8(J)P-E	75	78	232
MMY-SUG1201MT8(J)P-E	79	82	232
MMY-SUG1401MT8(J)P-E	79	84	232
MMY-SUG1601MT8(J)P-E	83	87	329
MMY-SUG1801MT8(J)P-E	84	89	329
MMY-SUG2001MT8(J)P-E	85	89	361
MMY-SUG2201MT8(J)P-E	86	90	361
MMY-SUG2401MT8(J)P-E	86	91	361

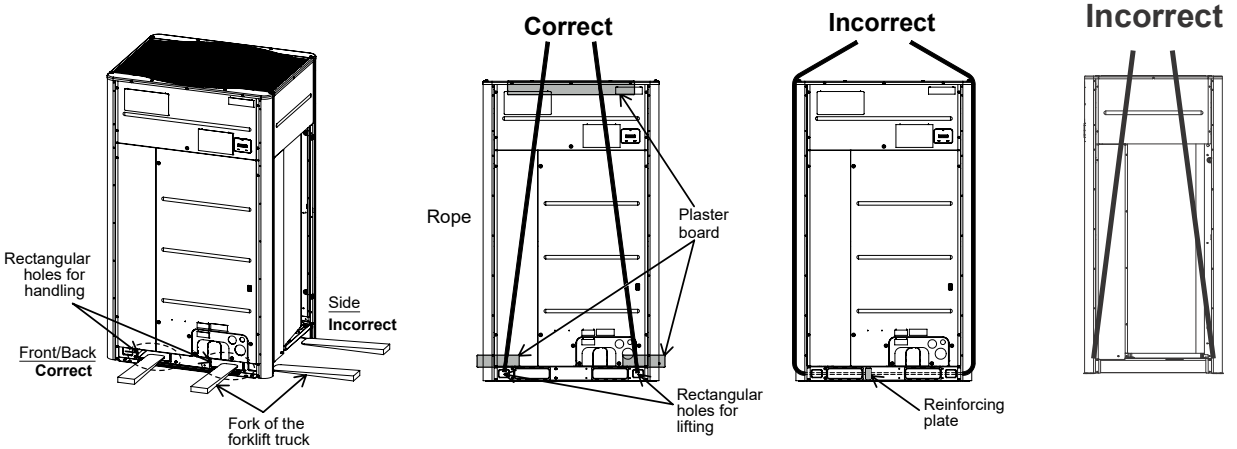
Model	Sound power level (dBA)		Weight (kg)
	Cooling	Heating	
MMY-SUG0801MT8P-A	74	77	232
MMY-SUG1001MT8P-A	75	78	232
MMY-SUG1201MT8P-A	79	82	232
MMY-SUG1401MT8P-A	79	84	232
MMY-SUG1601MT8P-A	83	87	329
MMY-SUG1801MT8P-A	84	89	329
MMY-SUG2001MT8P-A	85	90	361
MMY-SUG2201MT8P-A	86	91	361
MMY-SUG2401MT8P-A	86	91	361

Carrying in the outdoor unit

⚠ CAUTION

Handle the outdoor unit carefully, observing the following items

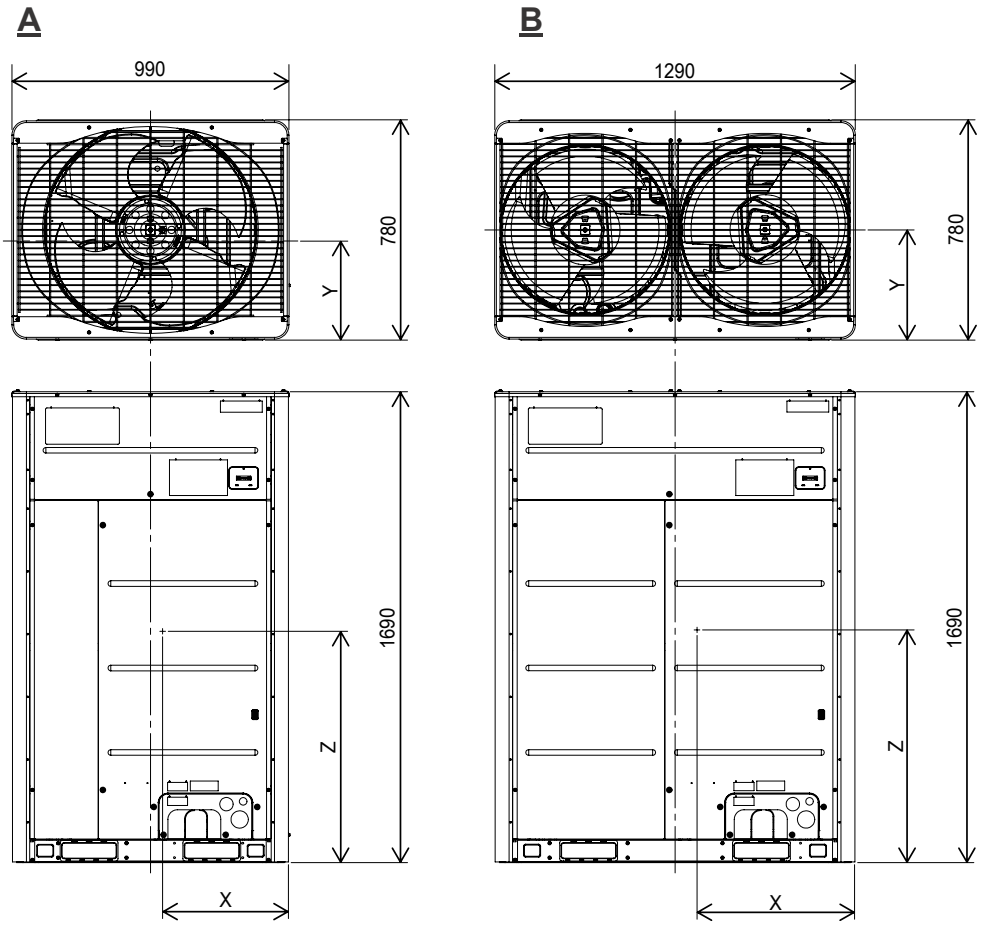
- When using a forklift truck or other machinery for loading/unloading in transportation, insert the fork of the forklift truck into the rectangular holes for handling as shown below.
- When lifting up the unit, insert a rope able to bear the unit's weight into the rectangular holes for handling, and tie the unit from 4 sides.
  (Apply padding in positions where the rope comes into contact with the outdoor unit so that no damage is caused to the outer surface of the outdoor unit.)
  (There are reinforcing plates on the side surfaces, so the rope cannot be passed through.)



Weight center and weight

◆ Weight center of an outdoor unit

(Unit : mm)

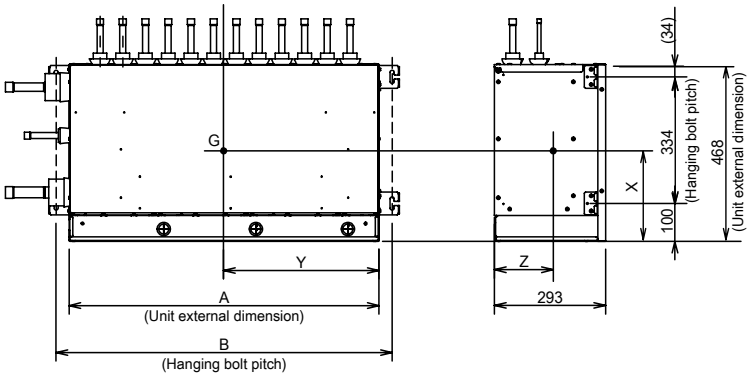


Weight center and weight

No.	Model	X (mm)	Y (mm)	Z (mm)	Weight(kg)
A	MMY-SUG0801*	450	355	830	232
	MMY-SUG1001*				
	MMY-SUG1201*				
	MMY-SUG1401*				
B	MMY-SUG1601*	565	390	835	329
	MMY-SUG1801*				
	MMY-SUG2001*	490	390	725	361
	MMY-SUG2201*				
	MMY-SUG2401*				

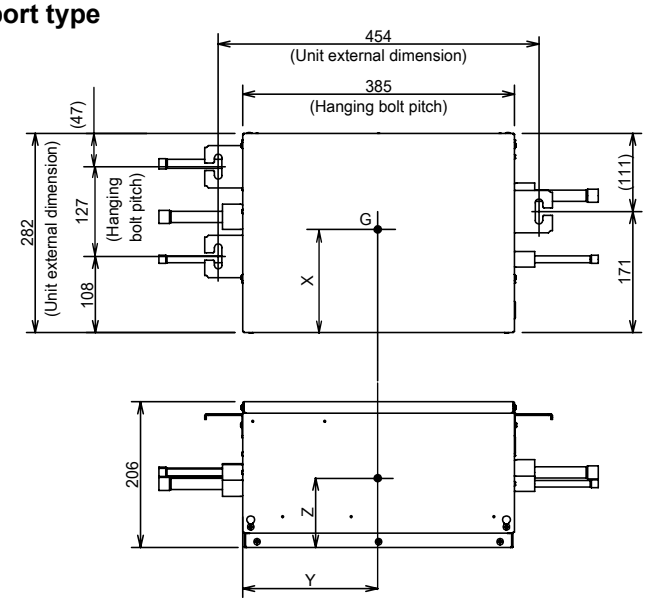
(Unit : mm)

Flow Selector unit Multi-port type



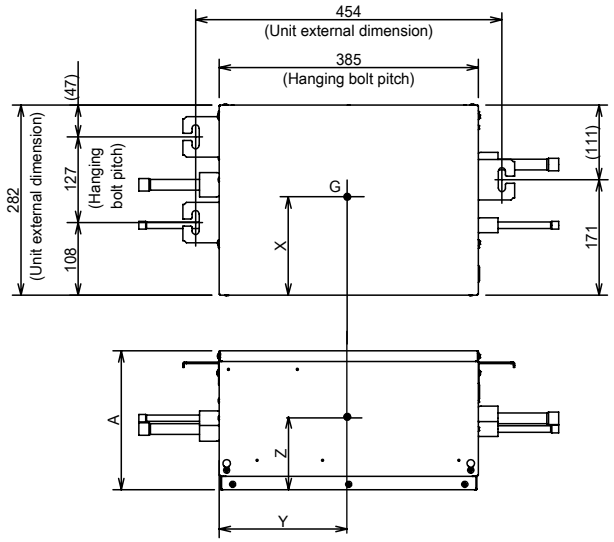
RBM-Y1801***	A (mm)	B (mm)	X (mm)	Y (mm)	Z (mm)	Weight (kg)
FU4PE	338	407	239	178	155	22
FU8PE	578	647	239	302	155	36
FU12PE	818	887	239	410	155	50

Flow Selector unit Single-port type



RBM-***	X (mm)	Y (mm)	Z (mm)	Weight (kg)
Y1121FUPE	146	191	98	11
Y1801FUPE	146	191	98	11
Y2801FUPE	146	191	98	11

Shut-off Valve unit

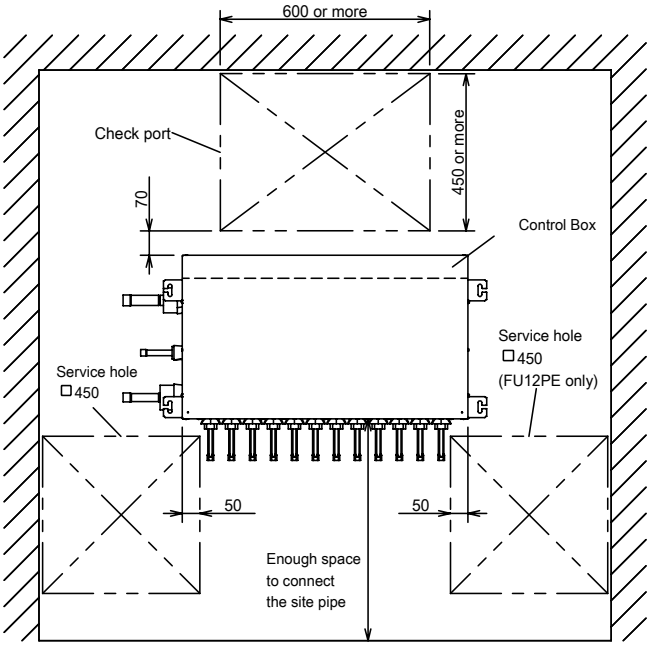


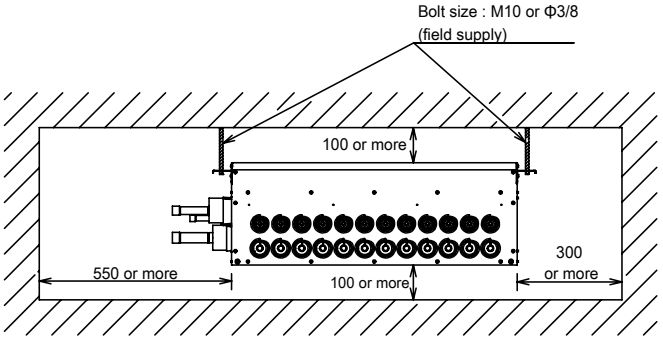
RBM-***	A (mm)	X (mm)	Y (mm)	Z (mm)	Weight (kg)
SV1121HUPE	206	137	190	108	10
SV1801HUPE	206	137	190	108	10
SV6701HUPE	216	151	191	102	12

FLOW SELECTOR UNIT, SHUT-OFF VALVE UNIT INSTALLATION SPACE

Flow Selector unit Multi-port type

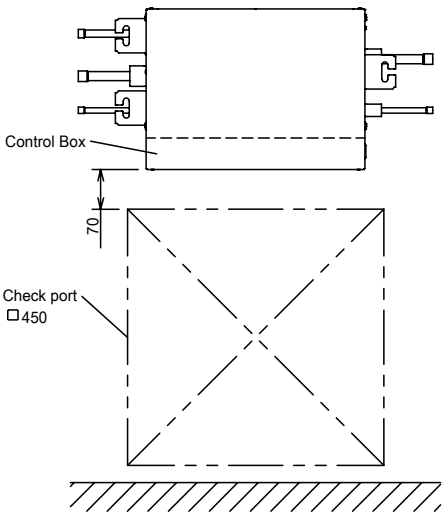
(Unit : mm)

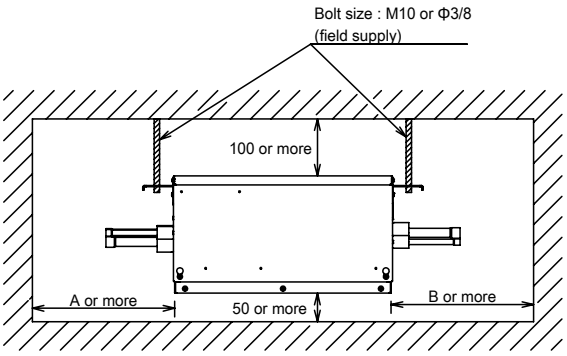




Flow Selector unit Single-port type

(Unit : mm)



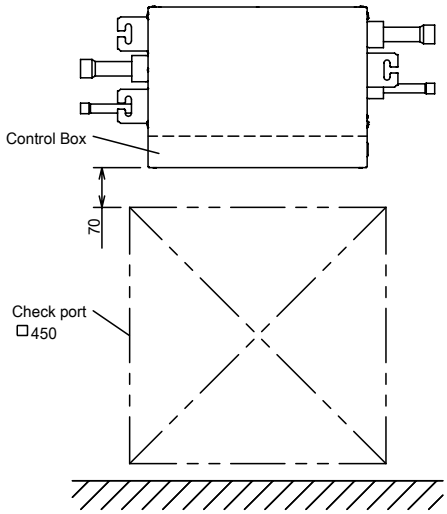


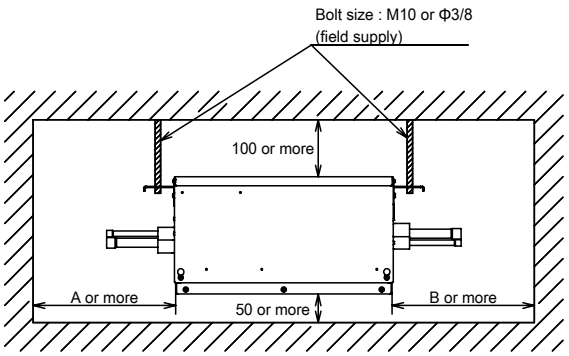
RBM-***	A	B
Y1121FUPE	250	250 (*)
Y1801FUPE	250	250
Y2801FUPE	400	400

(*) In case of using the attached pipe (accessory) 350mm

Shut-off Valve unit

(Unit : mm)

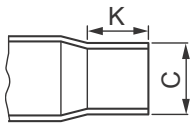
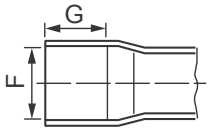




RBM-***	A	B
SV1121HUPE	250	250 (*1)
SV1801HUPE	250	250
SV6701HUPE	550 (*2)	550 (*2)

(*1) In case of using the attached pipe (accessory) 350mm
(*2) In case of using the attached pipe (accessory) 650mm

Coupling size of brazed pipe

Connected section	
External size	**Internal size**
	

(Unit: mm)

Standard outer dia. of connected copper pipe	Connected section				Oval value	Min. thickness of coupling
	External size	Internal size	Min. depth of insertion			
	Standard outer dia. (Allowable difference)					
	C	F	K	G		
6.35	6.35 (±0.03)	6.45 (±0.03)	7	6	0.06 or less	0.50
9.52	9.52 (±0.03)	9.62 (±0.03)	8	7	0.08 or less	0.60
12.70	12.70 (±0.03)	12.81 (±0.03)	9	8	0.10 or less	0.70
15.88	15.88 (±0.03)	16.00 (±0.03)	9	8	0.13 or less	0.80
19.05	19.05 (±0.03)	19.19 (±0.03)	11	10	0.15 or less	0.80
22.22	22.22 (±0.03)	22.36 (±0.03)	11	10	0.16 or less	0.90
25.40	25.40 (±0.04)	25.56 (±0.04)	13	12	0.18 or less	0.95
28.58	28.58 (±0.04)	28.75 (±0.04)	13	12	0.20 or less	1.00

Screw size and tightening torque

	Screw size	Tightening torque (N•m)
Power supply terminal	M6	2.5 to 3.0
Earth screw	M8	5.5 to 6.6
Communication wire terminal	M4	1.2 to 1.4

Adding refrigerant

After finishing vacuuming, exchange the vacuum pump with a refrigerant canister and start additional charging of refrigerant.

Calculation of additional refrigerant charge amount
Refrigerant charge amount at shipment from the factory does not include the refrigerant for pipes at the local site. For refrigerant to be charged in pipes at the local site, calculate the amount and charge it additionally.

NOTE

If the additional refrigerant amount indicates minus as the result of calculation, use the air conditioner without additional refrigerant.

Outdoor unit type	SUG0801	SUG1001	SUG1201	SUG1401	SUG1601	SUG1801	SUG2001	SUG2201	SUG2401
Charging amount (kg)	6.0				9.0				

Additional refrigerant charge amount at site = [1] + [2] + [3] + [4]

[1] Compensation by system HP (Table 1)*
[2] Real Length of liquid pipe X additional refrigerant charge amount per 1 m liquid pipe (Table 2)
[3] Corrective amount of refrigerant depending on the Indoor units (Table 3-1, 3-2 and 3-3)
[4] Corrective amount of refrigerant depending on the outdoor unit diversity (Connected ratio of indoor units to outdoor units). (Table 4)

Table 1
Standard

System HP	Combination HP
8	0.5
10	0.7
12	1.2
14	1.2
16	-0.3
18	0.6
20	1.2
22	1.4
24	1.6

※ This table is common for both heat pump and heat recovery models.

Table 2

Liquid pipe dia. (mm)		6.4	9.5	12.7	15.9	19.1
Heat pump	Additional refrigerant amount per 1m liquid pipe (kg/m)	0.024	0.052	0.100	0.152	0.238
Heat recovery	Additional refrigerant amount per 1m liquid pipe (kg/m)	0.025	0.055	0.105	0.160	0.250

Table 3-1

Corrective amount of refrigerant varies according to indoor unit capacity rank.

Indoor unit Capacity rank	003	005	007	008	009	010	012	014	015	018	020	024	027	030	036	048	056	072	096
Capacity code (Equivalent to HP)	0.3	0.6	0.8	0.9	1	1.1	1.25	1.5	1.7	2	2.25	2.5	3	3.2	4	5	6	8	10
Corrective amount of refrigerant (kg)	0.2								0.4						0.6			1.0	

- If the Fresh Air Intake Indoor Unit (MMD-UP ✻✻✻✻ HFP ✻) is connected, the correction amount refrigerant for Fresh Air Intake Indoor Unit is 0 Kg.

Table 3-2

Corrective amount of refrigerant varies for Hot Water Module

Indoor unit Capacity rank	024	048
Capacity code (Equivalent to HP)	2.5	5
Corrective amount of refrigerant (kg)	0.2	

Table 3-3

Corrective amount of refrigerant varies for (MMU-UP ✻✻✻ H-E) High Efficiency 4 way cassette

Indoor unit capacity rank	009	012	015	018	024	027	030	036	048	056
Capacity code (Equivalent to HP)	1	1.25	1.7	2	2.5	3	3.2	4	5	6
Corrective amount of refrigerant (kg)	0.2		0.6							

Charging of refrigerant

- Keeping the valve of the outdoor unit closed, be sure to charge the liquid refrigerant into the service port at the liquid side.
- If the specified amount of refrigerant cannot be charged, fully open the valves of the outdoor unit at liquid and gas sides, operate the air conditioner in COOL mode, and then charge refrigerant into service port at the gas side. In this time, choke the refrigerant slightly by operating the valve of the canister to charge liquid refrigerant.
- The liquid refrigerant may be charged suddenly, therefore be sure to charge refrigerant gradually.

Table 4

Corrective amount of refrigerant varies according to the outdoor unit diversity

Diversity D (%)	Corrective amount of refrigerant (kg)
50% ≤ D < 60%	-2.5
60% ≤ D < 70%	-2.0
70% ≤ D < 80%	-1.5
80% ≤ D < 90%	-1.0
90% ≤ D < 95%	-0.5
95% ≤ D	0

About refrigerant R32

This air conditioner adopts a new HFC type refrigerant (R32) which does not deplete the ozone layer.

1. Safety Caution Concerned to Refrigerant R32

Be sure that water, dust, the former refrigerant or the former refrigerating oil is not mixed into the refrigerating cycle of the air conditioner with refrigerant R32 during installation work or service work.
If an incorrect work or incorrect service is performed, there is a possibility to cause a serious accident.
Use the tools and materials exclusive to R32 to purpose a safe work.

2. Safety and Cautions on Installation/Service

<Safety items>

When gas concentration and ignition energy are happened at the same time, R32 has a slight possibility of burning. Although it will not ignite under normal work environment conditions, be aware that the flame spreads if ignition should occur.
It is necessary to carry out installation/servicing safely while taking the following precautions into consideration.

1) Never use refrigerant other than specified refrigerant (R32) in an air conditioner which is designed to operate with the specified refrigerant (R32).
   If other refrigerant than R32 is used, it may cause personal injury, etc. due to a malfunction, a fire, or rupture.
2) Since R32 is heavier than air, it tends to accumulate on the bottom (near the floor).
   Ventilate properly for the working environment to prevent its combustion.
   Especially in a basement or a closed room where there is a high risk of the accumulation, ventilate the room with a local exhaust ventilator.
   If refrigerant leakage is confirmed in the room or the place where the ventilation is insufficient, do not work until the proper ventilation is performed and the work environment is improved.
3) When performing brazing work, be sure to check for leakage refrigerant or residual refrigerant.
   If the leakage refrigerant comes into contact with fire, a poisonous gas may occur, causing a fire. Keep adequate ventilation during the work.
4) When refrigerant gas leaks during work, execute ventilation. If the leakage refrigerant comes into contact with a fire, a poisonous gas may occur, causing a fire.
5) In places where installing / repairing air-conditioning equipment, etc., keep the source of ignition such as gas combustion equipment, petroleum combustion equipment, electric heater etc. away. Do not smoke in the place.
6) When installing or removing an air conditioner, do not mix air in the refrigerant cycle.
   If air or others is mixed with the refrigerant, abnormal high pressure occurs in the refrigerating cycle, causing injury due to the breakage.
7) After installation work has been completed, confirm that refrigerant gas is not leaking on the flare connection part or others. If leaked refrigerant comes to contact with a fire, toxic gas may occur, causing a fire.
8) Perform the installation work and re-installation according to the installation manual.
   Pay attention especially to the area of application. Improper installation may cause refrigeration trouble, water leakage, electric shock, or fire etc.
9) Unauthorized modifications to the air conditioner may be dangerous. If a breakdown occurs, please call a qualified air conditioner technician or electrician.
   Improper repair may result in water leakage, electric shock and fire, etc.
10) Carry out the airtight test with nitrogen at a specified pressure. Do not use oxygen or acetylene gas absolutely as it may cause an explosion.
11) Always carry a refrigerant leakage detection sensor during the work and work while checking that no refrigerant leaks around working environment.
12) If the leakage refrigerant comes into contact with fire, it may cause a fire.
    Have a dry powder or CO_2 fire extinguisher adjacent to the charging area.

<Caution items>

1) The opposite side dimension of the air-conditioner's flared nut using R32 and the shape of the charge port are the same as those of R410A.
2) Be careful not to charge refrigerant by mistake. Should the different type of refrigerant be mixed, be sure to recharge the refrigerant.
3) Do not mix the other refrigerant or refrigerating oil with the refrigerant.
4) Since the pressure of R32 is 1.6 times higher than that of the former refrigerant (R22), use tools and parts for high pressure resistance specification similar to R410A.
5) In the installation time, use clean pipe materials and work with great attention so that water and others do not mix in because pipes are affected by impurities such as water, oxide film, oil, etc. Use the clean pipes. Be sure to braze while flowing nitrogen gas in the pipe. (Never use gas other than nitrogen gas.)
6) For the earth protection, use a vacuum pump for air purge.
7) R32 refrigerant is Single-component refrigerant that does not change its composition.
   Although it is possible to charge the refrigerant with either liquid or gas, charge it with liquid.

3. Pipe Materials

For the refrigerant pipes, copper pipe and joints are mainly used.
It is necessary to select the most appropriate pipes to conform to the standard.
Use clean pipes or joints to which little impurities adhere.

1) Copper pipe

<Piping>

The pipe thickness, flare-finishing size, flare nut and others differ according to a refrigerant type.
When using a long copper pipe for R32, it is recommended to select "Copper or copper-base pipe without seam" and one with bonded oil amount 40mg/10m or less.
Also do not use crushed, deformed, discolored (especially inside) pipes.
(Impurities cause clogging of expansion valves and capillary tubes.)

<Flare nut>

Use the flare nuts which are attached to the air conditioner unit.

Be sure to select the pipes with copper thickness in the table below since the pressure of an air conditioner using R32 is higher than that of R22.

Nominal diameter	Outer diameter (mm)	Thickness (mm) R410A or R32
1/4	6.4	0.80
3/8	9.5	0.80
1/2	12.7	0.80
5/8	15.9	1.00

Make sure not to use a thin copper pipe such as 0.7 mm copper thickness in the market.

2) Joint

The flare joint and socket joint are used for joints of the copper pipe.
The joints are rarely used for installation of the air conditioner.
However clear impurities when using them.

4. Tools

○: R410A tools available
△: Partly unavailable, ×: R410A tools unavailable

No.	Installation/service tools		Use	Applicability to R32 air conditioner or not	Applicability to R22 air conditioner or not
	Tools / Equipment	specification			
1	Flare tool	Clutch type	Pipe flaring	○	○
2	Copper pipe gauge for adjusting projection margin	—	Flaring by conventional flare tool	○	—
3	Torque wrench	—	Tightening of flare nut	○	×
4	Gauge manifold	Port size 1/2"-20UNF (5/16" Flare)	Evacuating, refrigerant charge, run check, etc.	○ Note 2	×
5	Charge hose	High-voltage		○	×
6	Vacuum pump	—	Vacuum drying	○ Note 3 1/2"-20UNF(5/16" Flare)	△ Connection diameter 1/4"
7	Vacuum pump adapter	—	Vacuum drying	○ Note 4 1/2"-20UNF(5/16" Flare)	△ Connection diameter 1/4"
8	Electronic balance for refrigerant charging	For 10 kg or 20 kg cylinder	Refrigerant charge	○	○
9	Leakage detector	—	Gas leakage check	○ Note 5	○ Note 5
10	Refrigerant cylinder	—	Refrigerant charge	× Note 6	×
11	Refrigerant recovery cylinder	Exclusive for R32	Refrigerant recovery container	× Note 7	×
12	Refrigerant recovery device	—	Refrigerant recovery device	○ Note 8	△ Connection diameter 1/4"

Note 1 When flaring is carried out for R410A or R32 using the conventional flare tools, adjustment of projection margin is necessary. For this adjustment, a copper pipe gauge, etc. is necessary.

Note 2 When saturation temperature is described, the gauge manifold differs for R410A and R32. If saturation temperature reading is required, special tools exclusive for R32 are required.

Note 3 Since R32 has a slight possibility of burning, be sure to use the tools corresponding to R32.

Note 4 Like R410, a Vacuum pump adapter needs installing to prevent a Vacuum pump oil (mineral oil) from flowing backward into the Charge hose. Mixing of the Vacuum pump oil into R32 refrigerant may cause a trouble such as generation of sludge, clogging of capillary, etc.

Note 5 Be sure to use those tools after confirming they correspond to each refrigerant.

Note 6 For a refrigerant cylinder exclusive for R32, the paint color (or label color) of the cylinder is set to the specified color (light blue) together with the indication of the refrigerant name.

Note 7 Although the container specification is the same as that of R410A, use a recovering container exclusive for R32 to avoid mixing with other refrigerants.

Note 8 Be careful for miss charging of the refrigerant during work. Miss charging of the refrigerant type may cause not only damage of the equipment but also a fire etc.

General tools

In addition to the above exclusive tools, the following equipment is necessary as the general tools.

1) Pipe cutter
2) Reamer
3) Pipe bender
4) Level vial
5) Screwdriver (+, –)
6) Spanner or Adjustable wrench
7) Hole core drill
8) Tape measure
9) Metal saw

Also prepare the following equipment for other installation method and run check.

1) Clamp meter
2) Thermometer
3) Insulation resistance tester (Megger)
4) Electroscope

Airtightness test

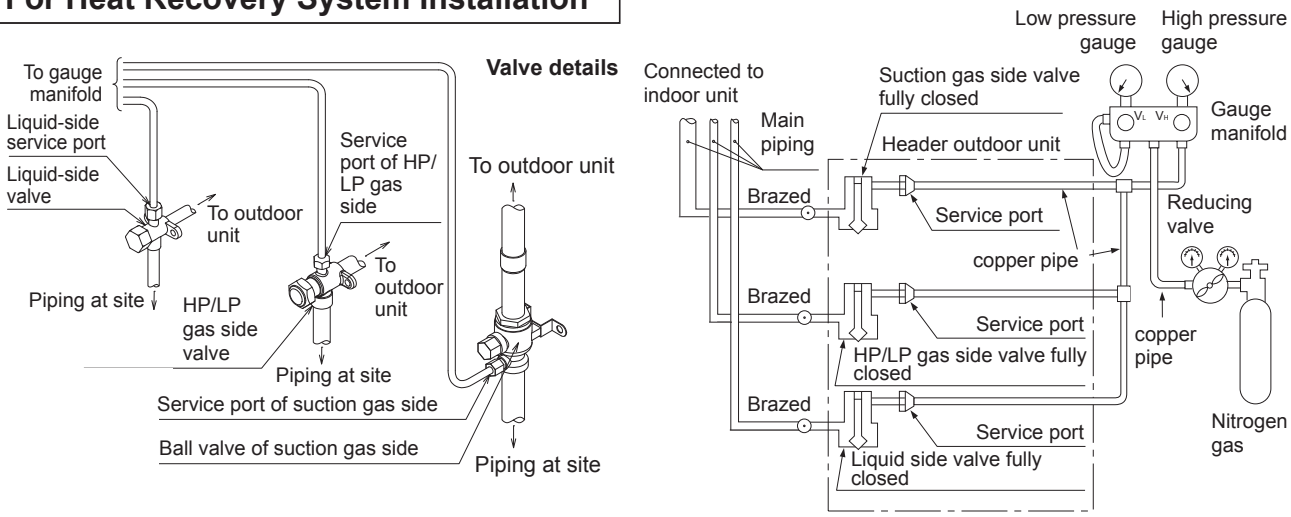
After the refrigerant piping has been finished, execute an airtight test.
For an airtight test, connect a nitrogen gas canister as shown in the figure on this page and apply pressure.

- Be sure to apply pressure from the service ports of the packed valves (or ball valve) at the liquid side and (HP/LP, Suction) gas side.
- An airtight test can only be performed at the service ports at the liquid side and (HP/LP, Suction) gas side.
- Close the valves fully at the (HP/LP, Suction) gas side and liquid side. As there is a possibility that the nitrogen gas will enter into the cycle of outdoor units, re-tighten the valve rods at the liquid side before applying pressure.
- For each refrigerant line, apply pressure gradually in steps at the liquid side and (HP/LP, Suction) gas side. **Be sure to apply pressure at the (HP/LP, Suction) gas side and liquid side.**

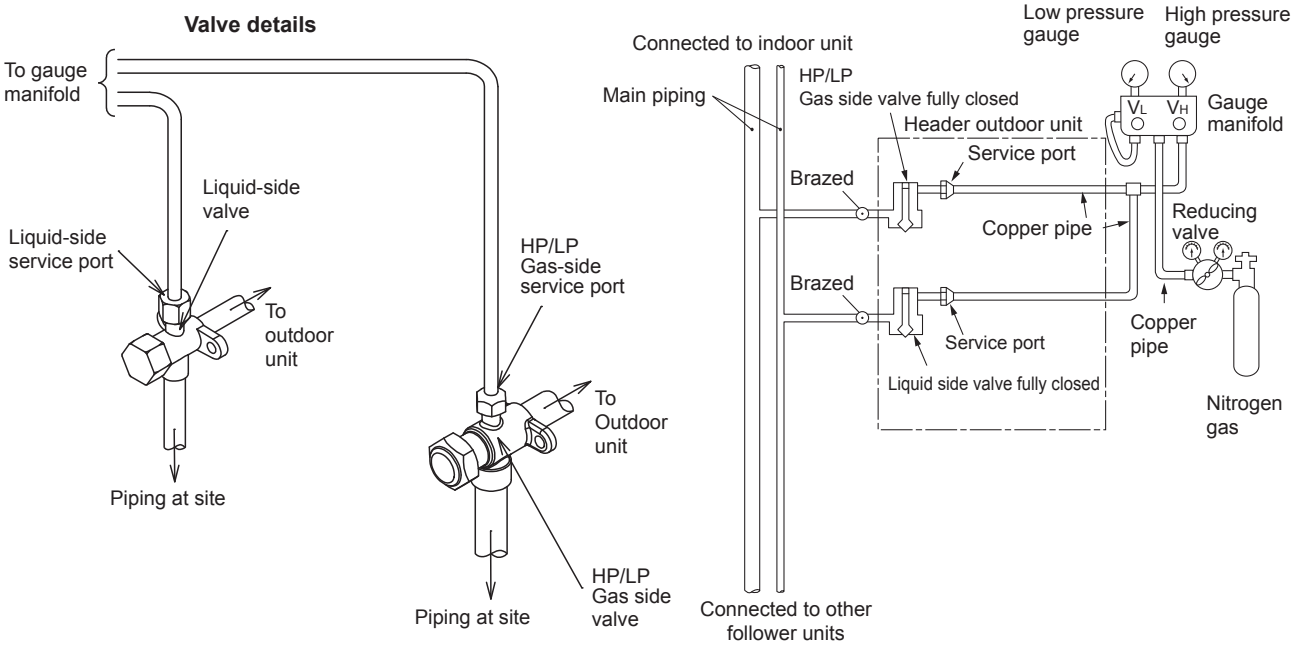
⚠ WARNING

Never use oxygen, flammable gases, or noxious gases in an airtight test.

For Heat Recovery System Installation



For Heat Pump System Installation



Able to detect a serious leakage

1. Apply pressure 0.3 MPa (3.0 kg/cm^{2}G) for 5 minutes or more.
2. Apply pressure 1.5 MPa (15 kg/cm^{2}G) for 5 minutes or more.

Available to detect slow leakage

3. Apply pressure 4.15 MPa (42.3 kg/cm^{2}G) for approx. 24 hours.

- If there is no pressure decrease after 24 hours, the test is passed.

NOTE

However, if the environmental temperature changes from the moment of applying pressure to 24 hours after that, the pressure will change by about 0.01 MPa (0.1 kg/cm^{2}G) per 1°C. Consider the pressure change when checking the test result.

REQUIREMENT

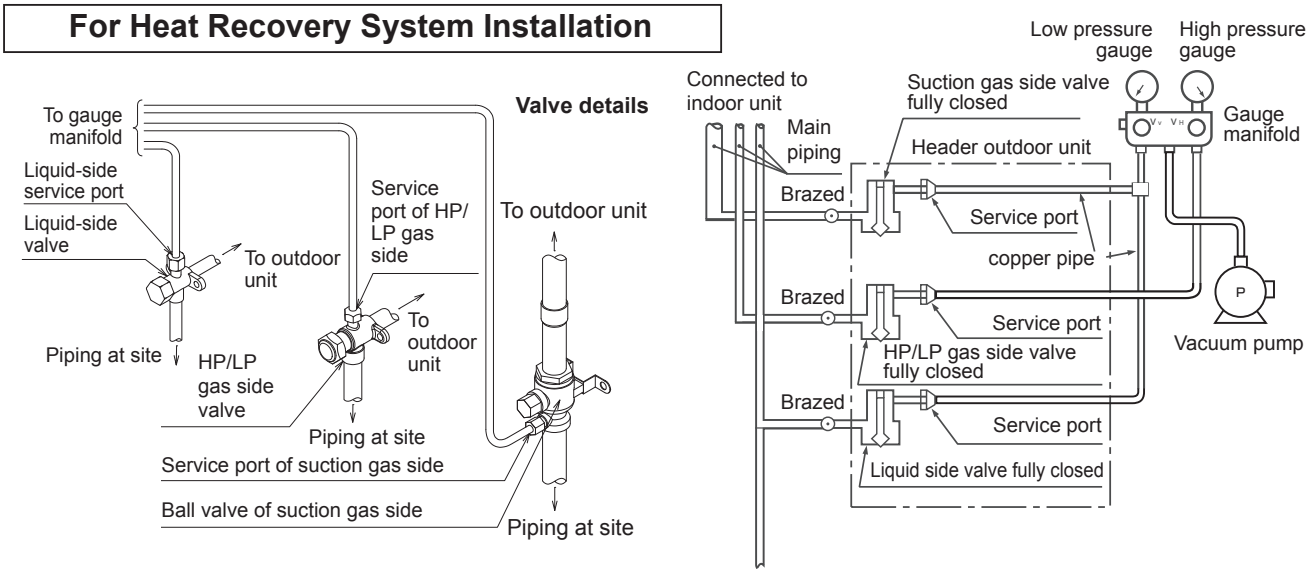
When pressure decrease is detected in steps 1-3, check the leakage at the connecting points.
Check the leakage using a foaming agent or other measures and seal the leak with re-brazing, flare retightening or other methods. After sealing, execute an airtight test again.

Vacuum drying

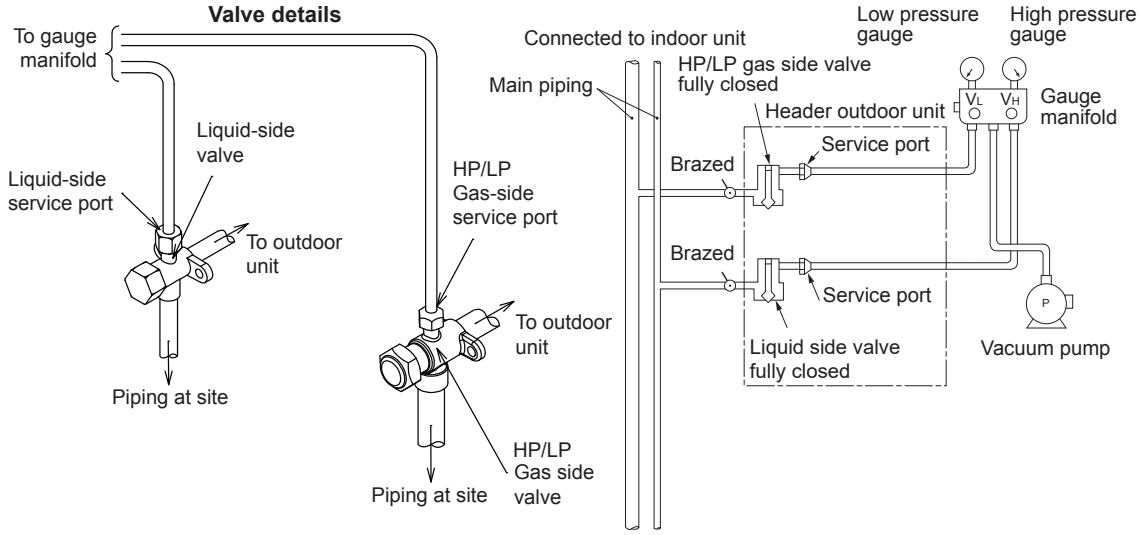
- Before and during installation, do NOT turn on the power until vacuuming and refrigerant charging are completed.
- If the power is turned on during vacuuming or refrigerant charging, do NOT turn off the power until the work is completed.
- Be sure to perform vacuuming from both liquid and (HP/LP, Suction) gas side.
- Be sure to use a vacuum pump equipped with the counter-flow prevention function so that oil in the pump will not flow back into piping for air conditioners. (If oil in the vacuum pump enters in the air conditioner with R32 refrigerant, a problem may be caused in the refrigerating cycle.)

After finishing the airtight test and discharging nitrogen gas, connect the gauge manifold to the service ports of the liquid side and (HP/LP, Suction) gas side and connect a vacuum pump as shown in the figure below. Be sure to perform vacuuming for the liquid and (HP/LP, Suction) gas pipe sides.

For Heat Recovery System Installation



For Heat Pump System Installation



- Use a vacuum pump with a high vacuuming degree [-100.7 kPa (5 Torr, -755 mmHg)] and large exhaust gas amount (40 L/minute or larger).
- Perform vacuuming for 2 or 3 hours, though the time differs depending on the pipe length. Check that all the packed valves at the liquid side and (HP/LP, Suction) gas side are fully closed.
- If the pressure does not reach -100.7 kPa or less, continue vacuuming for 1 hour or more. If the pressure does not reach -100.7 kPa after 3 hours of vacuuming, stop vacuuming and check for air leakage.
- If the pressure reaches -100.7 kPa or less after vacuuming for 2 hours or more, close the valves VL and VH on the gauge manifold fully and stop the vacuum pump. Leave it as it is for 1 hour to confirm that the vacuuming degree does not change.
  If the degree of vacuum loss is large, moisture may remain in the pipes. In that case, inject dry nitrogen gas and apply pressure to 0.05 MPa and perform vacuuming again.
- After finishing the above procedure of vacuuming, exchange the vacuum pump with a refrigerant canister and advance to the additional charging of refrigerant.

5. Safety precautions related to regulations on Installation and Service.

Make sure installation, servicing, maintenance and repair comply with instructions from TOSHIBA and with applicable legislation (for example, national gas regulation) and are executed only by authorized people.

These safety cautions describe important matters concerning safety to prevent injury to users or other people and damages to property. Please read through this manual after understanding the contents below (meanings of indications), and be sure to follow the description.

	**WARNING** (Risk of fire)	This mark is for R32 refrigerant only. Refrigerant type is written on nameplate of outdoor unit. In case that refrigerant type is R32, this unit uses a flammable refrigerant. If refrigerant leaks and comes in contact with fire or heating part, it will create harmful gas and there is risk of fire.
	Read the OWNER'S MANUAL carefully before operation.	
	Service personnel are required to carefully read the OWNER'S MANUAL and INSTALLATION MANUAL before operation.	
	Further information is available in the OWNER'S MANUAL, INSTALLATION MANUAL, and the like.	

⚠ WARNING

- Model that use refrigerant R32 and R410A have a different charging port thread diameter to prevent erroneous charging with refrigerant R22 and for safety.
- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- The appliance shall be stored in a room without continuously operating ignition sources. (For example: open flames, an operating gas appliance or an operating or an operating electric heater.)
- Do not pier d or burn.
- Be aware that refrigerants may not contain an odor.
- The manufacturer may provide other suitable examples or may provide additional information about the refrigerant odor.

General (Installation space / area)

- The installation of pipe-work shall be kept to a minimum.
- Pipe-work shall be protected from physical damage.
- The compliance with national gas regulations shall be observed.
- The mechanical connections shall be assessable for maintenance purposes.
- In cases that require mechanical ventilation, ventilation openings shall be kept clear of obstruction.
- When disposing of the product is used, be based on national regulations with properly processed.
- The servicing shall be performed only as recommended by the manufacturer.
- Where the appliance using flammable refrigerants is installed, Be aware that;
  - The appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.
  - The appliance shall be stored in a room without continuously operating open flames (for example an operating gas appliance) and ignition sources (for example an operating electric heater).
  - The appliance shall be stored so as to prevent mechanical damage from occurring.
- Equipment piping in the occupied space shall be installed in such a way to protect against accidental damage in operation and service.
- Precautions shall be taken to avoid excessive vibration or pulsation to refrigerating piping.
- Protection devices, piping and fittings shall be protected as far as possible against adverse environmental effects, for example, the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris.
- Provision shall be made for expansion and contraction of long runs of piping.

- Piping in refrigerating systems shall be so designed and installed to minimize the likelihood hydraulic shock damaging the system.
- Solenoid valves shall be correctly positioned in the piping to avoid hydraulic shock.
- Install the system according to Installation Manual and avoid the likelihood hydraulic shock damaging the system.
- Solenoid valves shall not block in liquid refrigerant unless adequate relief is provided to the refrigerant system low pressure side.
- Steel pipes and components shall be protected against corrosion with a rustproof coating before applying any insulation.
- The indoor equipment and pipes shall be securely mounted and guarded such that accidental rupture of equipment cannot occur from such events as moving furniture or reconstruction activities.
- Where safety shut off valves are specified, the minimum room area may be determined base on the maximum amount of refrigerant that can be leaked as determined in Installation Manual.
- Where safety shut off valves are specified, the location of the valve in the refrigerating system relative to the occupied spaces shall be as described in Installation Manual.
- When installing the system that used flammable refrigerant in a non-ventilated space, it shall be installed in the large space or with safety equipment as designated below, so as to prevent the refrigerant from staying and causing a fire of explosion by the refrigerant leak.
- The total refrigerant charge in the system cannot exceed the requirements for minimum floor area of the smallest room that is served. For minimum floor area requirements for indoor units, see the Installation and Owner's Manual of the outdoor unit.
- When connecting to an outdoor unit of R32 refrigerant and using a leak detector, always turn on the power of the indoor unit after installation except during service in order to detect refrigerant leakage and take safety measures.
- Precautions shall be taken to avoid excessive vibration or pulsation to refrigerating piping.
- Only mechanical fittings can be used. (Example; Brazing+flame connection)
- Refrigerating system shall use only permanent joints indoors except for site-made joints directly connecting the indoor unit to the refrigerant piping, of factory made mechanical joints in compliance with ISO 14903.

Unventilated area

- The appliance shall be stored so as to prevent mechanical damage from occurring.

Installation

- Appliance shall be installed, operated and stored in a room with a floor area larger than [Amin] m2.
- For appliances using R32 refrigerant connected via an air duct system to one or more rooms, no auxiliary devices, which may be a potential ignition source, shall be installed in the duct work. (example: hot surfaces with a temperature exceeding 700 °C and electric switching device)
- There shall be no operation ignition sources (example: open flames, an operating gas appliance or an operating electric heater) in case the floor area is less than the minimum floor area A (m^2)
- [Amin] is the minimum floor area.
  Please refer to Installation Manual , in order to comply with the contents above.
- The total amount of refrigerant in the system must be less than or equal to the maximum allowable total amount of refrigerant.
  The maximum allowable amount of refrigerant (The number of connected indoor units) x 15.9kg] and the maximum is 63.85 [kg.]
- Keep the installation height according to the indoor unit type.

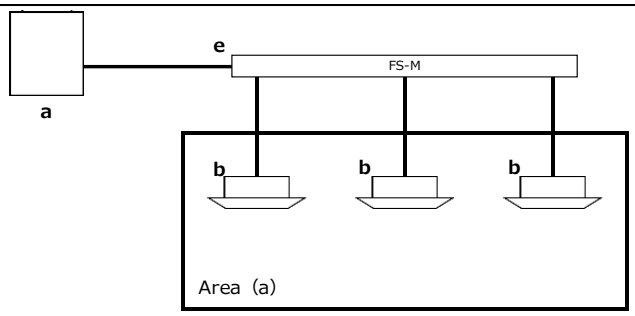
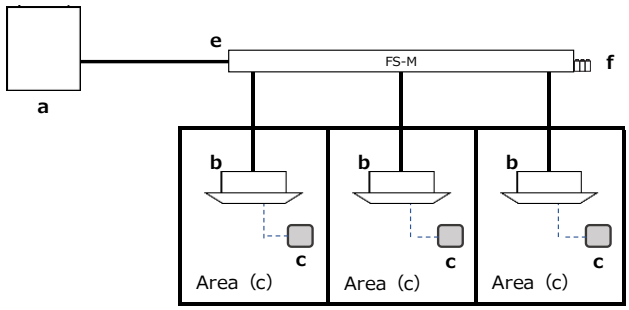
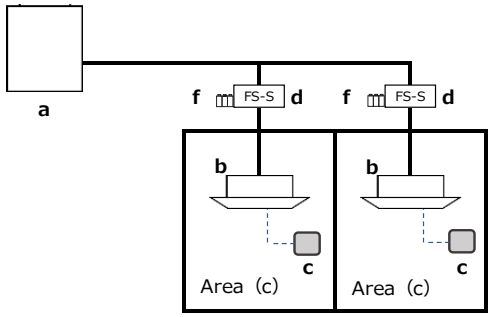
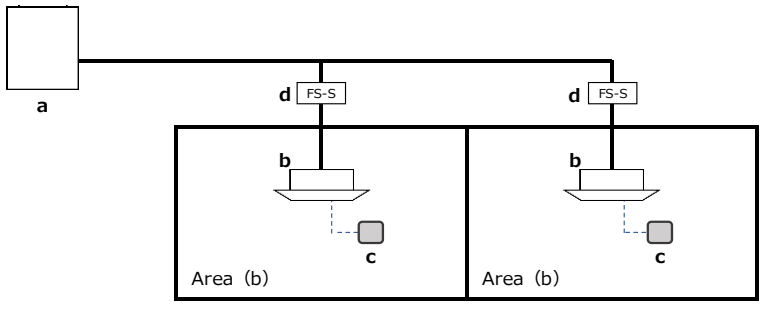
  Ceiling-mounted unit (include Duct type) : 2.2m or more.
  Wall- mounted and under celling unit : 1.8m or more.

  But install the indoor unit at least 2.5m above the floor lever since otherwise the users may injure themselves or receive electric shocks if they poke their fingers of other objects into the indoor unit while the air conditioner is running.

- Connect both the air inlet and outlet of the duct directly to the same room.
- Do not use a space such as a false ceiling as the air inlet or the outlet of the duct.
- The position where the safety shut-off valve can be installed differs depending on the setting of safety measures.

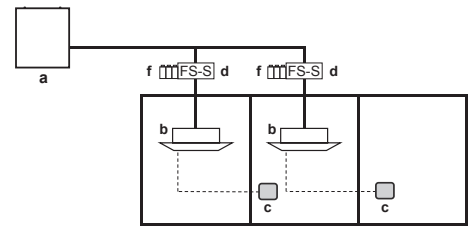
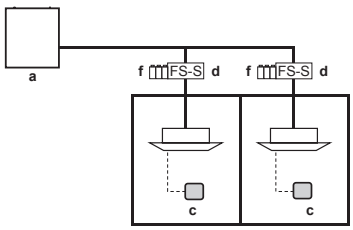
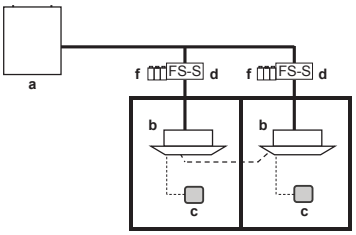
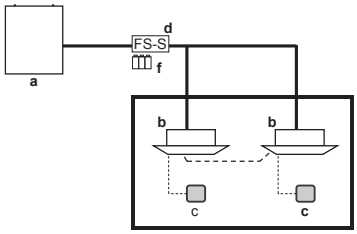
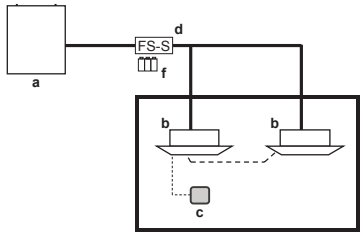
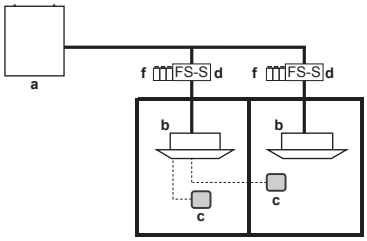
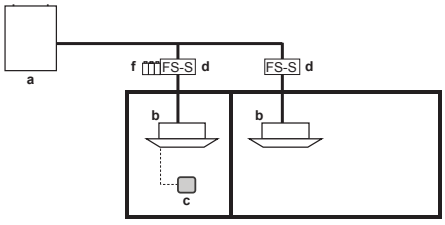
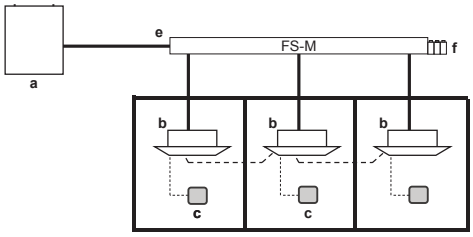
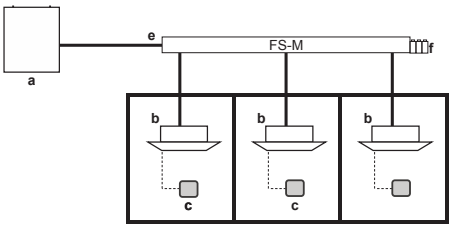
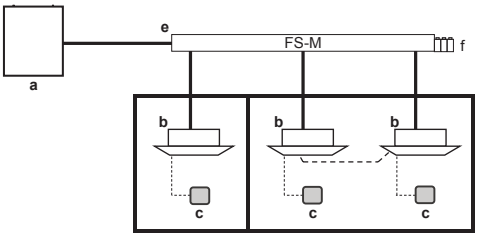
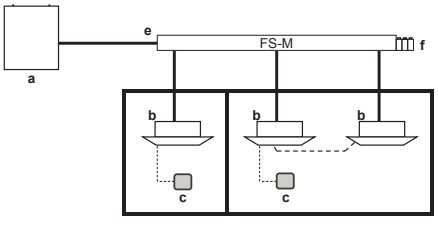
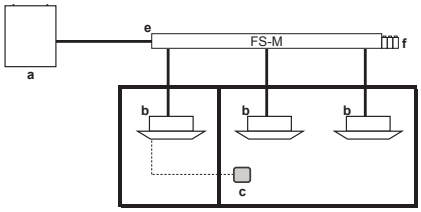
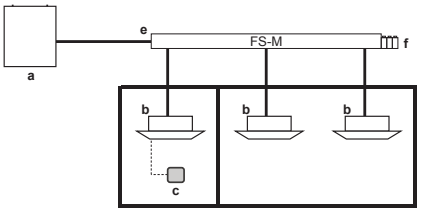
[Each safety system and installation example]

FS unit : Flow Selector unit

CODE No. [107]	Connection example	Case
[00]		When installing in a room corresponding to area (a), set the CODE No. [107] to [00]. No additional safety measures are required.
[01]		When installing in a room corresponding to area (c), set the CODE No. [107] to [01] or [02]. Be sure to install a refrigerant leak detector. Be sure to connect the FS unit (or shut-off valve unit) and install the battery unit. When the CODE No. [107] is set to [01], the entire system will be stopped when refrigerant leakage is detected. ※In the [01] setting and [02] setting of the CODE No. [107], the position where the FS unit (or shut-off valve unit) can be installed is different.
[02]		When installing in a room corresponding to area (c), set the CODE No. [107] to [01] or [02]. Be sure to install a refrigerant leak detector. Be sure to connect the FS unit (or shut-off valve unit) and install the battery unit. When the CODE No. [107] is set to [02], the corresponding indoor unit stops when refrigerant leakage is detected (other indoor units can continue operation). ※Indoor units connected to the multi port type FS unit cannot be set to [02] for indoor DN[107]. ※In the [01] setting and [02] setting of the CODE No. [107], the position where the FS unit (or shut-off valve unit) can be installed is different.
[03]		When the CODE No. [107] is set to [03] by area (b), the entire system stops when refrigerant leakage is detected. This setting can only be used in rooms that fall under area (b). Be sure to install a refrigerant leak detector.

a : Outdoor unit
b : Indoor unit
c : Leak detector
d : Single port type FS unit (or shut-off valve unit)
e : Multi port type FS unit
f : Battery unit

(The examples for safety device installations)
The location of the leak detector varies depending on the safety system and the room.

	Incorrect	Correct	Case
1			Install the Leak Detector in the same room as the connected indoor unit.
2			Group setting of indoor unit across FS unit (or Shut-off Valve unit) is not possible.
3			Only one Leak Detector can be connected to indoor units with a group setting.
4			Multiple refrigerant Leak Detectors cannot be connected to one indoor unit.
5			Only one Leak Detector can be connected to indoor units with a group setting. Install each indoor unit in a separate room, and do not set the group if a Leak Detector is required. ※ Multi port type FS unit cannot be used by setting the CODE No. [107] to [02] (Individual shut-off).
6			Only one Leak Detector can be connected to indoor units with a group setting. If indoor units installed in the same room are used in the group setting, the Leak Detector to be connected should be one in one group. ※ Multi port type FS unit cannot be used by setting the CODE No. [107] to [02] (Individual shut-off).
7			Install the Leak Detector in the same room as the connected indoor unit. ※ Multi port type FS unit cannot be used by setting the CODE No. [107] to [02] (Individual shut-off).

a : Outdoor unit
b : Indoor unit
c : Leak detector

d : Single port type Flow Selector unit (or Shut-off Valve unit) FS : Flow Selector
e : Multi port type Flow Selector unit
f : Battery unit

Information on servicing

1. Check to the area

- Prior to begging work on systems containing flammable
  ignition is minimized. For repair to the refrigerating system, the precautions in item 2 to 6 shall be complied with prior to conducting work on the system.

2. Work procedure

- Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed.
- When connecting to an outdoor unit of R32 refrigerant and using a leak detector, the fan may automatically operate even if the air conditioner is stopped when a refrigerant leak is detected. Be careful not to get injured by the fan.

3. General work area

- All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out.
- Work in confined spaces shall be avoided.
- The area around the workspace shall be sectioned off.
- Ensure that the conditions within the area have been made safe by control of flammable material.

4. Checking for presence of refrigerant

- The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially flammable atmospheres.
- Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non sparking, adequately sealed or intrinsically safe.

5. Presence of fire extinguisher

- If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available on hand.
- Have a dry powder of CO_2 fire extinguisher adjacent to the charging area.

6. No ignition sources

- No person carrying out work in relation to a refrigeration system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire of explosion.
- All possible ignition sources including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space.
- Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.
- Make sure that the exhaust port of the vacuum pump is not close to the ignition source and that ventilation is possible.
- Oxygen free nitrogen (OFN) shall then be purged through the system both before and during the brazing process.

7. Ventilated area

- Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work.
- A degree of ventilation shall continue during the period that the work is carried out.
- The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

8. Check to the refrigeration equipment

- Where electrical components are being changed, installer shall be fit for the purpose and to the correct specification.
- At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt consult the manufacturer's technical department for assistance.
- The following checks shall be applied to installations using flammable refrigerants.

- The charge size is in accordance with the room size within which the refrigerant containing parts are installed.
- The ventilation machinery and outlets are operating adequately and are not obstructed.
- If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant.
- Marking to the equipment continues to be visible and legible.
  Markings and signs that are illegible shall be corrected.
- Refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

9. Checks to electrical devices

- Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures.
- It a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with.
- If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used.
  This shall be reported to the owner of the equipment so all parties are advised.
- Initial safety checks shall include;
  - That capacitors are discharged to avoid possibility of sparking.
  - That there no live electrical components and wiring are exposed while charging, recovering or purging the system.
  - That there is continuity of earth bonding.

10. Repairs to sealed components

- During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc.
- If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.
- Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected.
- This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.
- Ensure that apparatus is mounted securely.
- Ensure that seals or sealing materials have not degraded to the point that they no longer serve the purpose of preventing the ingress of flammable atmospheres.
- Replacement parts shall be in accordance with the manufacturer's specifications.

NOTE

The use of silicon sealant may inhibit the effectiveness of some types of leak detection equipment.
Intrinsically safe components do not have to be isolated prior to working on them.

11. Repairs to intrinsically safe components

- Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.
- Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere.
- The test apparatus shall be at the correct rating.
- Replace components only with parts specified by the manufacturer.
- Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

12. Cabling

- Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects.
- Check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

13. Detection of flammable refrigerants

- Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks.
- A halide torch (or any other detector using a naked flame) shall not be used.
- Electronic leak detectors shall be used to detect refrigerant leaks but, in the case of flammable refrigerants, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.)
- Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used.
- Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25% maximum) is confirmed.
- Leak detection fluids are also suitable for use with most refrigerants but the used of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode containing chlorine.
- If a leak is suspected, all naked flames shall be removed / extinguished.
- If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) is a part of the system remote from the leak.

14. Leak detection methods

- Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used.
- Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed and the appropriate percentage of gas (25% maximum) is confirmed.
- Leak detection fluids are suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine my react with the refrigerant and corrode the copper pipe-work
- If a leak is suspected, all naked flames shall be removed / extinguished.
- If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak.

15. Removal and evacuation

- When breaking into the refrigerant circuit to make repairs of for any other purpose, Conventional procedures shall be used. However, it is important that best practice is followed since flammability is a consideration.
  The following procedure shall be adhered to :
  - remove refrigerant;
  - purge the circuit with inert gas;
  - evacuate;
  - purge again with inert gas;
  - open the circuit by cutting or brazing;
- The refrigerant charge shall be recovered into the correct recovery cylinders.
- The system shall be "Flushed" with OFN to render the unit safe.
- This process may need to be repeated several times.
- Compressed air or oxygen shall not be used for purging refrigerant systems.
- Flushing shall be achieved by breaking the vacuum in the system with OFN and continuing to fill until the working pressure is achieved, then venting to atmosphere and finally pulling down to a vacuum.
- This process shall be repeated until no refrigerant is within the system.
- When the final OFN charge is used, the system shall be vented down to atmospheric pressure to enable work to take place.
- This operation is absolutely vital if brazing operations on the pipe-work are to take place.
- Ensure that the outlet for the vacuum pump is not close to any ignition sources and that ventilation available.

16. Charging procedures

- In addition to conventional charging procedures, the following requirements shall be followed.
  - Ensure that contamination of different refrigerants does not occur when using charging equipment.
  - Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
  - Cylinders shall be kept upright.
  - Ensure that the refrigeration system is earthed prior to charging the system with refrigerant.
  - Label the system when charging is complete (if not already).
  - Extreme care shall be taken not to overfill the refrigeration system.
- Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas.
- The system shall be leak tested on completion of charging but prior to commissioning.
- A follow up leak test shall be carried out prior to leaving the site.

17. Decommissioning

- Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its details.
- It is recommended good practice that all refrigerants are recovered safely.
- Prior to the task being carried out, and refrigerant sample shall be taken in case analysis is required to reuse of reclaimed refrigerant.
- It is essential that electrical power is available before the task is commenced.

a) Become familiar with the equipment and its operation.
b) Isolate system electrically.
c) Before attempting the procedure ensure that:

- Mechanical handling equipment is available, if required, for handling refrigerant cylinders;
- All personal protective equipment is available and being used correctly;
- The recovery process is supervised at all times by a competent person;
- Recovery equipment and cylinders conform to the appropriate standards.

d) Pump down refrigerant system, if possible.
e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
f) Make sure that cylinder is situated on the scales before recovery takes place.
g) Start the recovery machine and operate in accordance with manufacturer's instructions.
h) Do not overfill cylinders. (No more than 80% volume liquid charge.
i) Do not exceed the maximum working pressure of the cylinder, even temporarily.
j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
k) Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

18. Labelling

- Equipment shall be labelled stating that it has been decommissioned and emptied of refrigerant.
- The label shall be dated and signed.
- Ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

19. Recovery

- When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.
- When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed.
- Ensure that the correct number of cylinders for holding the total system charge are available.
- All cylinders to be used are designated for the recovered refrigerant and labeled for that refrigerant (i.e. special cylinders for the recovery of refrigerant).
- Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order.
- Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.
- The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriated refrigerants.
- In addition, a set of calibrated weighing scales shall be available and in good working order.
- Hoses shall be complete with leak-free disconnect couplings and in good condition.
- Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release.
- Consult manufacturer if in doubt.
- The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged.
- Do not mix refrigerants in recovery units and especially not in cylinders.
- If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant.
- The evacuation process shall be carried out prior to returning the compressor to the suppliers.
- Only electric heating to the compressor body shall be employed to accelerate this process.
- When oil is drained from a system, it shall be carried out safely.
- Do not use the unit until it is confirmed that the portion from which the refrigerant leaked is repaired.
- When installing, relocating, or servicing the air conditioner, use only the specified refrigerant (R32) to charge the refrigerant lines. Do not mix if with any other refrigerant and do not allow air to remain in the lines.

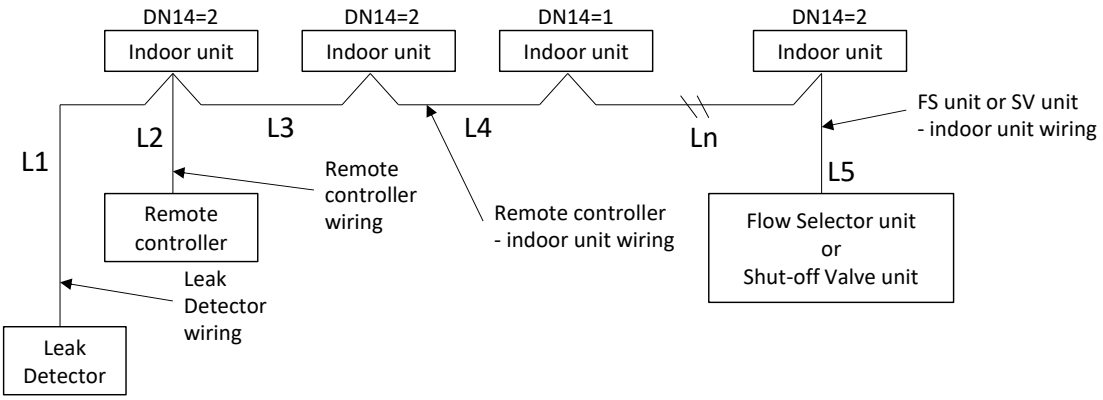
Communication type, model names and the maximum number of connectable units

- **Only TU2C-LINK can be used for the communication specifications of this air conditioner. U series and SHRM Advance are compatible with TU2C-LINK. For the outdoor/indoor model names such as each unit or remote controllers, refer to the following table.**

Communication type	TU2C-Link (U series, SHRM Advance and future models)
Outdoor unit	MMY-SUG*** ↑ This letter indicates SHRM Advance.
Indoor unit	MM*-UP*** ↑ This letter indicates U series model.
Wired remote controller	RBC-A**U*** ↑ This letter indicates U series model.
Wireless remote controller kit & receiver unit	RBC-AXU*** ↑ This letter indicates U series model.
Remote sensor	TCB-TC**U*** ↑ This letter indicates U series model.

- **There are restrictions on the wiring specifications and the number of units that can be connected.**

(1) For wiring specifications, carry out the installation, maintenance, or repair according to the attached Installation Manual.
(2) The max number of connectable indoor units will be 9. (include FS unit or SV unit)
(3) The max number of connectable Remote controller and Leak Detector will be 2.
(4) Leak Detector wiring (L1) is limited to a length of 100m or less from header indoor unit (I.DN14=1). In case of the figure below, connect wiring so that total length of L1, L3, and L4 is 100m or less.

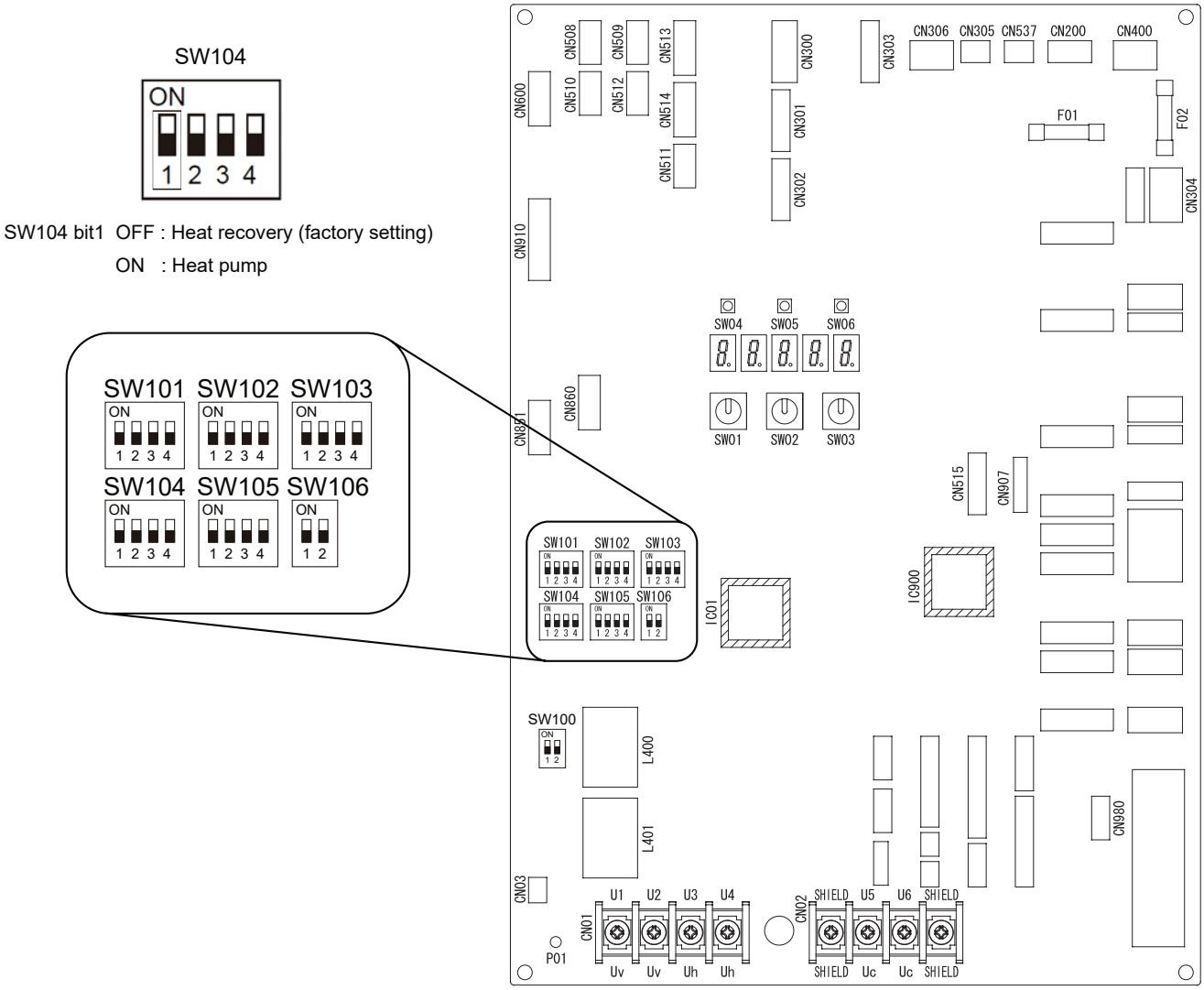


Switch HP/HR settings

◆ SHRM Advance can switch between Heat Pump (HP) and Heat Recovery (HR).

(1) HP/HR setting can be changed by switching SW104 bit1.
(2) For refrigerant piping installation for each HP/HR setting, carry out the installation according to the attached Installation Manual.
(3) FS unit cannot be connected when HP is set.
(4) SV unit cannot be connected when HR is set. However, SV units can only be connected to indoor units that are set to cooling only.

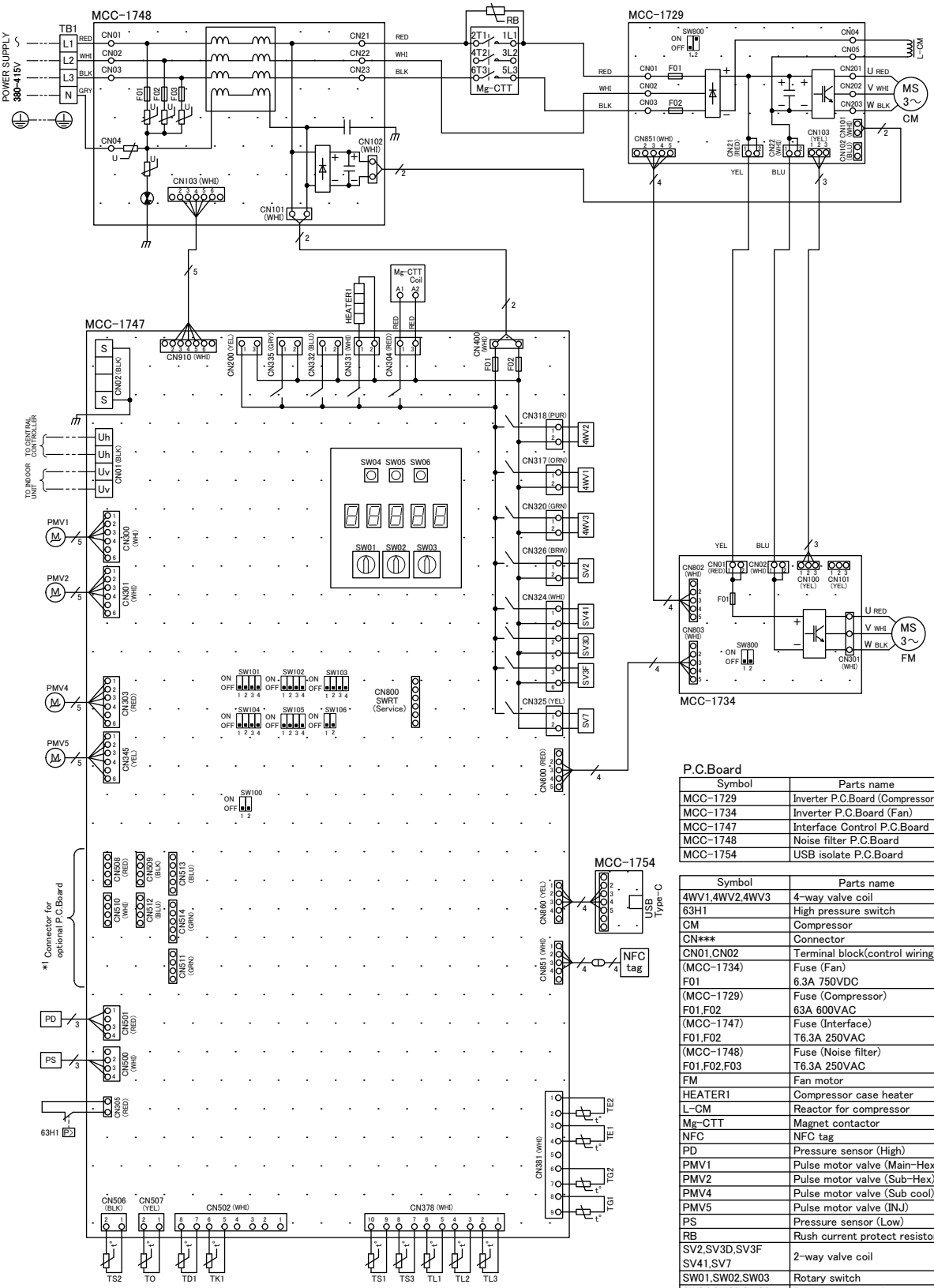
* Please refer to the table below for model names that can switch between HP/HR.



Model name	System			
	Europe (-E)		Oceania (-A)	
MMY-SUG0801*	Heat recovery	Heat pump	Heat recovery	Heat pump
MMY-SUG1001*				
MMY-SUG1201*				
MMY-SUG1401*				
MMY-SUG1601*				
MMY-SUG1801*				
MMY-SUG2001*				
MMY-SUG2201*				
MMY-SUG2401*				

1.WIRING DIAGRAMS

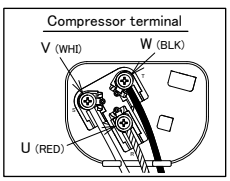
8, 10, 12, 14HP Model: MMY-SUG0801*, SUG1001*, SUG1201*, SUG1401*



*1 The installation of the optional board is up to four pieces.

———	Field wiring
⏚	Protective earth
□□	Terminal block
—○—	Terminal
○○	Connector
·····	P.C.Board

Color indication
RED:RED
WHI:WHITE
YEL:YELLOW
BLU:BLUE
BLK:BLACK
GRY:GRAY
ORN:ORANGE
GRN:GREEN
PUR:PURPLE
BRW:BROWN

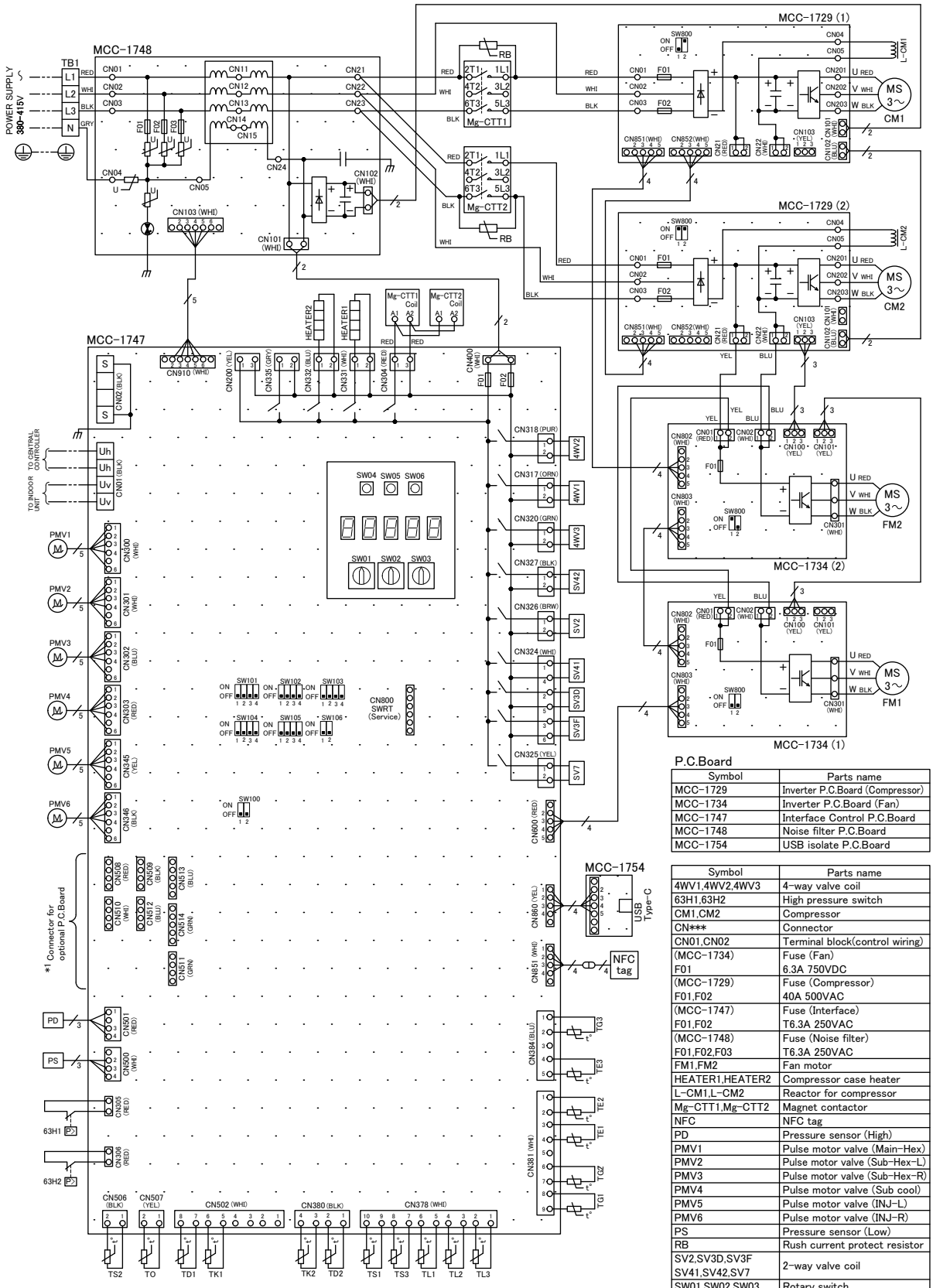


P.C.Board

Symbol	Parts name
MCC-1729	Inverter P.C.Board (Compressor)
MCC-1734	Inverter P.C.Board (Fan)
MCC-1747	Interface Control P.C.Board
MCC-1748	Noise filter P.C.Board
MCC-1754	USB isolate P.C.Board

Symbol	Parts name
4WV1,4WV2,4WV3	4-way valve coil
63H1	High pressure switch
CM	Compressor
CN***	Connector
CN01,CN02	Terminal block(control wiring)
(MCC-1734) F01	Fuse (Fan) 6.3A 750VDC
(MCC-1729) F01,F02	Fuse (Compressor) 63A 600VAC
(MCC-1747) F01,F02	Fuse (Interface) T6.3A 250VAC
(MCC-1748) F01,F02,F03	Fuse (Noise filter) T6.3A 250VAC
FM	Fan motor
HEATER1	Compressor case heater
L-CM	Reactor for compressor
Mg-CTT	Magnet contactor
NFC	NFC tag
PD	Pressure sensor (High)
PMV1	Pulse motor valve (Main-Hex)
PMV2	Pulse motor valve (Sub-Hex)
PMV4	Pulse motor valve (Sub cool)
PMV5	Pulse motor valve (INJ)
PS	Pressure sensor (Low)
RB	Rush current protect resistor
SV2,SV3D,SV3F SV41,SV7	2-way valve coil
SW01,SW02,SW03	Rotary switch
SW04,SW05,SW06	Push button switch
SW100,SW101,SW102 SW103,SW104,SW105 SW106	Dip switch
TB1	Terminal block(Power supply)
TD1	Discharge temp. sensor
TE1,TE2	Heat exchange temp. sensor
TG1,TG2	Gas temp. sensor
TK1	Oil temp. sensor
TL1,TL2,TL3	Liquid temp. sensor
TO	Air temp. sensor
TS1,TS2,TS3	Suction temp. sensor

16, 18HP Model: MMY-SUG1601*, SUG1801*



*1 The installation of the optional board is up to four pieces.

P.C.Board

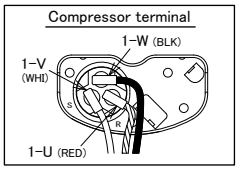
Symbol	Parts name
MCC-1729	Inverter P.C.Board (Compressor)
MCC-1734	Inverter P.C.Board (Fan)
MCC-1747	Interface Control P.C.Board
MCC-1748	Noise filter P.C.Board
MCC-1754	USB isolate P.C.Board

Symbol	Parts name
4WV1,4WV2,4WV3	4-way valve coil
63H1,63H2	High pressure switch
CM1,CM2	Compressor
CN***	Connector
CN01,CN02	Terminal block(control wiring)
(MCC-1734)	Fuse (Fan)
F01	6.3A 750VDC
(MCC-1729)	Fuse (Compressor)
F01,F02	40A 500VAC
(MCC-1747)	Fuse (Interface)
F01,F02	T6.3A 250VAC
(MCC-1748)	Fuse (Noise filter)
F01,F02,F03	T6.3A 250VAC
FM1,FM2	Fan motor
HEATER1,HEATER2	Compressor case heater
L-CM1,L-CM2	Reactor for compressor
Mg-CTT1,Mg-CTT2	Magnet contactor
NFC	NFC tag
PD	Pressure sensor (High)
PMV1	Pulse motor valve (Main-Hex)
PMV2	Pulse motor valve (Sub-Hex-L)
PMV3	Pulse motor valve (Sub-Hex-R)
PMV4	Pulse motor valve (Sub cool)
PMV5	Pulse motor valve (INJ-L)
PMV6	Pulse motor valve (INJ-R)
PS	Pressure sensor (Low)
RB	Rush current protect resistor
SV2,SV3D,SV3F SV41,SV42,SV7	2-way valve coil
SW01,SW02,SW03	Rotary switch
SW04,SW05,SW06	Push button switch
SW100,SW101,SW102 SW103,SW104,SW105 SW106	Dip switch
TB1	Terminal block(Power supply)
TD1,TD2	Discharge temp. sensor
TE1,TE2,TE3	Heat exchange temp. sensor
TG1,TG2,TG3	Gas temp. sensor
TK1,TK2	Oil temp. sensor
TL1,TL2,TL3	Liquid temp. sensor
TO	Air temp. sensor
TS1,TS2,TS3	Suction temp. sensor

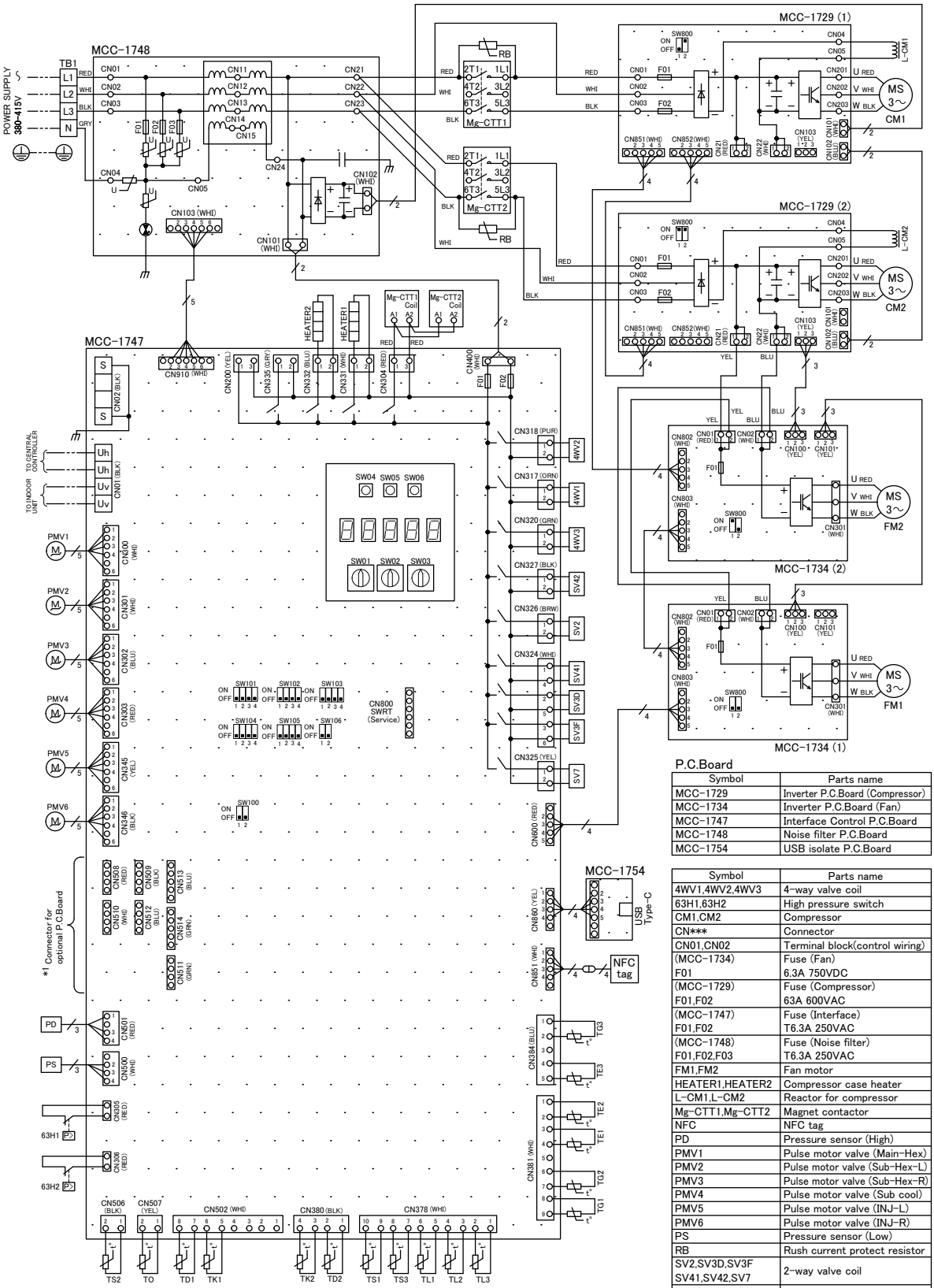
———	Field wiring
⏚	Protective earth
□□	Terminal block
—○—	Terminal
⊏○○⊐	Connector
·····	P.C.Board

Color indication
RED:RED
WHI:WHITE
YEL:YELLOW
BLU:BLUE
BLK:BLACK
GRY:GRAY
ORN:ORANGE
GRN:GREEN
PUR:PURPLE
BRW:BROWN

Compressor terminal



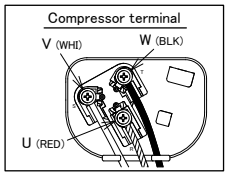
20, 22, 24HP Model: MMY-SUG2001*, SUG2201*, SUG2401*



*1 The installation of the optional board is up to four pieces.

———	Field wiring
⏚	Protective earth
□	Terminal block
—o—	Terminal
▭	Connector
┈┈	P.C.Board

Color indication
RED:RED
WHI:WHITE
YEL:YELLOW
BLU:BLUE
BLK:BLACK
GRY:GRAY
ORN:ORANGE
GRN:GREEN
PUR:PURPLE
BRW:BROWN



P.C.Board

Symbol	Parts name
MCC-1729	Inverter P.C.Board (Compressor)
MCC-1734	Inverter P.C.Board (Fan)
MCC-1747	Interface Control P.C.Board
MCC-1748	Noise filter P.C.Board
MCC-1754	USB isolate P.C.Board

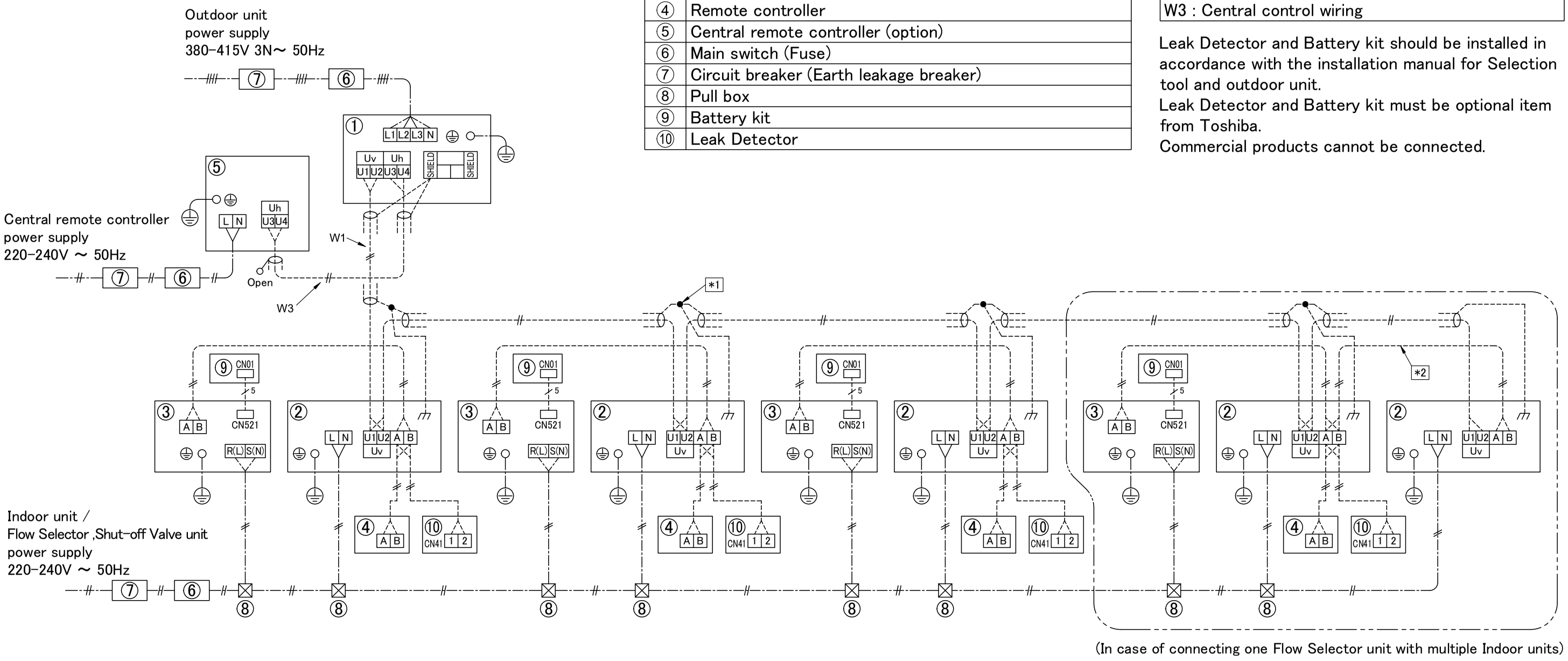
Symbol	Parts name
4WV1,4WV2,4WV3	4-way valve coil
63H1,63H2	High pressure switch
CM1,CM2	Compressor
CN***	Connector
CN01,CN02	Terminal block(control wiring)
(MCC-1734) F01	Fuse (Fan) 6.3A 750VDC
(MCC-1729) F01,F02	Fuse (Compressor) 63A 600VAC
(MCC-1747) F01,F02	Fuse (Interface) T6.3A 250VAC
(MCC-1748) F01,F02,F03	Fuse (Noise filter) T6.3A 250VAC
FM1,FM2	Fan motor
HEATER1,HEATER2	Compressor case heater
L-CM1,L-CM2	Reactor for compressor
Mg-CTT1,Mg-CTT2	Magnet contactor
NFC	NFC tag
PD	Pressure sensor (High)
PMV1	Pulse motor valve (Main-Hex)
PMV2	Pulse motor valve (Sub-Hex-L)
PMV3	Pulse motor valve (Sub-Hex-R)
PMV4	Pulse motor valve (Sub cool)
PMV5	Pulse motor valve (INJ-L)
PMV6	Pulse motor valve (INJ-R)
PS	Pressure sensor (Low)
RB	Rush current protect resistor
SV2,SV3D,SV3F SV41,SV42,SV7	2-way valve coil
SW01,SW02,SW03	Rotary switch
SW04,SW05,SW06	Push button switch
SW100,SW101,SW102 SW103,SW104,SW105 SW106	Dip switch
TB1	Terminal block(Power supply)
TD1,TD2	Discharge temp. sensor
TE1,TE2,TE3	Heat exchange temp. sensor
TG1,TG2,TG3	Gas temp. sensor
TK1,TK2	Oil temp. sensor
TL1,TL2,TL3	Liquid temp. sensor
TO	Air temp. sensor
TS1,TS2,TS3	Suction temp. sensor

Communication wiring

①	Outdoor unit
②	Indoor unit
③	Flow Selector unit Single-port type or Shut-off Valve unit
④	Remote controller
⑤	Central remote controller (option)
⑥	Main switch (Fuse)
⑦	Circuit breaker (Earth leakage breaker)
⑧	Pull box
⑨	Battery kit
⑩	Leak Detector

Shield wire
W1 : Control wiring between Indoor and Outdoor unit
W2 : Control wiring between Indoor units
W3 : Central control wiring

Leak Detector and Battery kit should be installed in accordance with the installation manual for Selection tool and outdoor unit.
Leak Detector and Battery kit must be optional item from Toshiba.
Commercial products cannot be connected.



(In case of connecting one Flow Selector unit with multiple Indoor units)

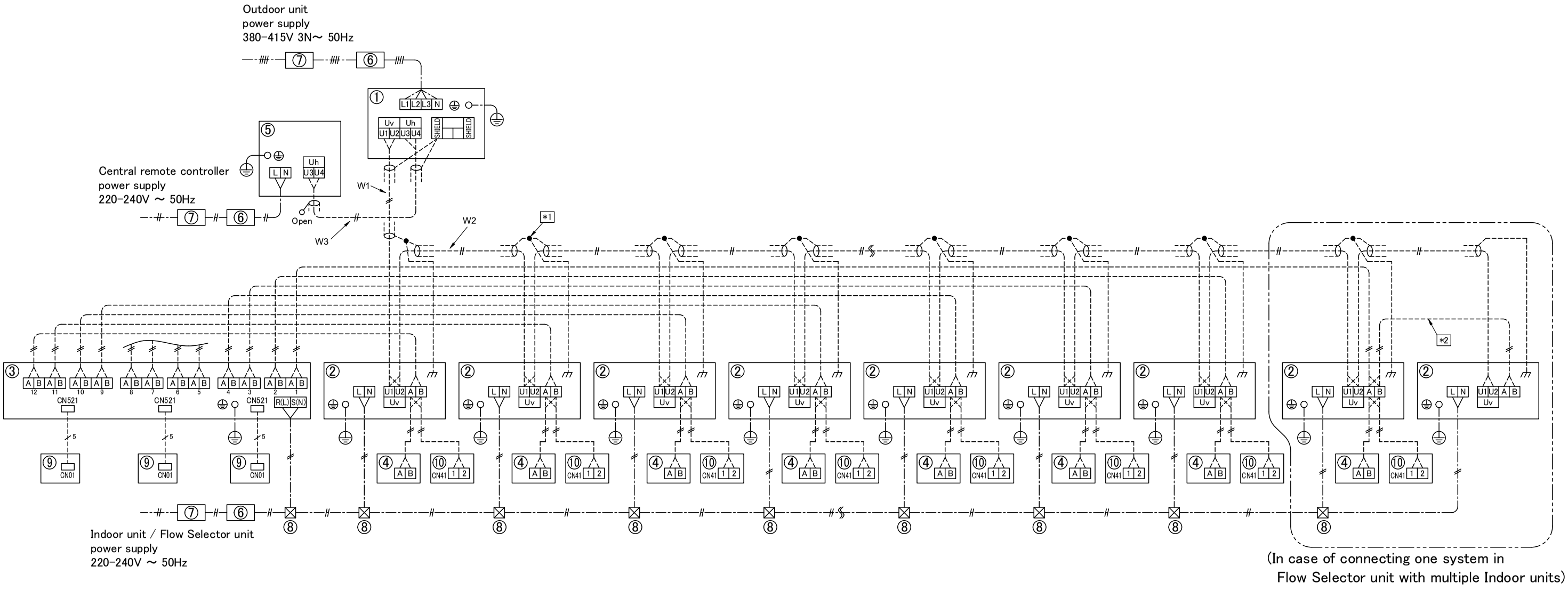
- Select the power supply wiring and fuse of Outdoor/Indoor units according to each model's specification. Perform wiring of power supply complying with the rules and regulations of the local electric company.
- For the control wires connecting Indoor units and between Indoor and Outdoor units, use 2-core and non-polarity shield wires.
- As for details, see the wiring diagram of Indoor/Outdoor/Flow Selector unit Single-port type or Shut-off Valve unit .
- Diagram of corrosion heavy protection model is the same as that of standard model.

*1. Connect the closed end terminal of shield wire.
(Connected to all connecting sections in each unit.)
*2. Group control.

①	Outdoor unit
②	Indoor unit
③	Flow Selector unit Multi-port type
④	Remote controller
⑤	Central remote controller (option)
⑥	Main switch (Fuse)
⑦	Circuit breaker (Earth leakage breaker)
⑧	Pull box
⑨	Battery kit
⑩	Leak Detector

Shield wire
W1 : Control wiring between Indoor and Outdoor unit
W2 : Control wiring between Indoor units
W3 : Central control wiring

Leak Detector and Battery kit should be installed in accordance with the installation manual for Selection tool and outdoor unit.
Leak Detector and Battery kit must be optional item from Toshiba.
Commercial products cannot be connected.

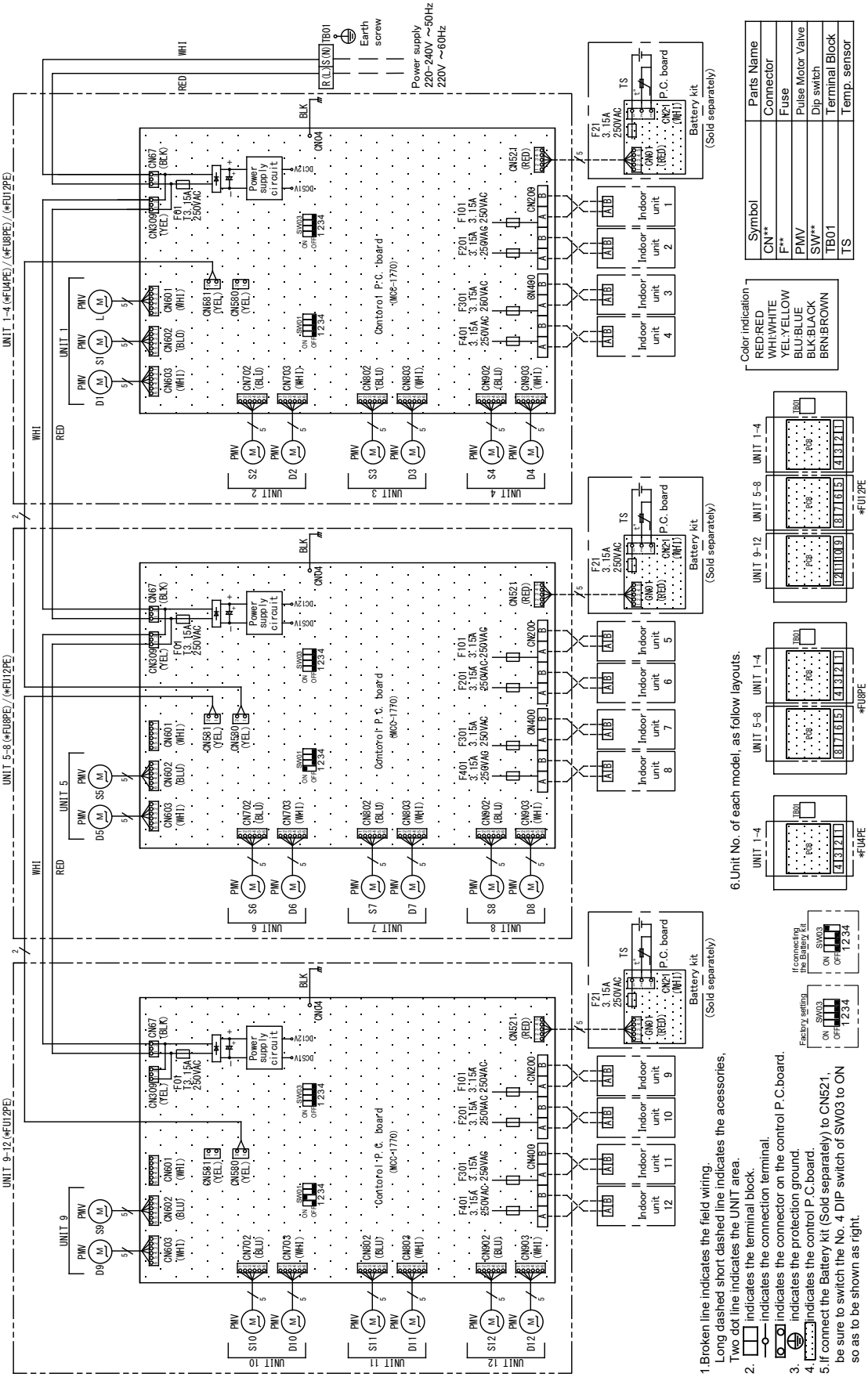


(In case of connecting one system in Flow Selector unit with multiple Indoor units)

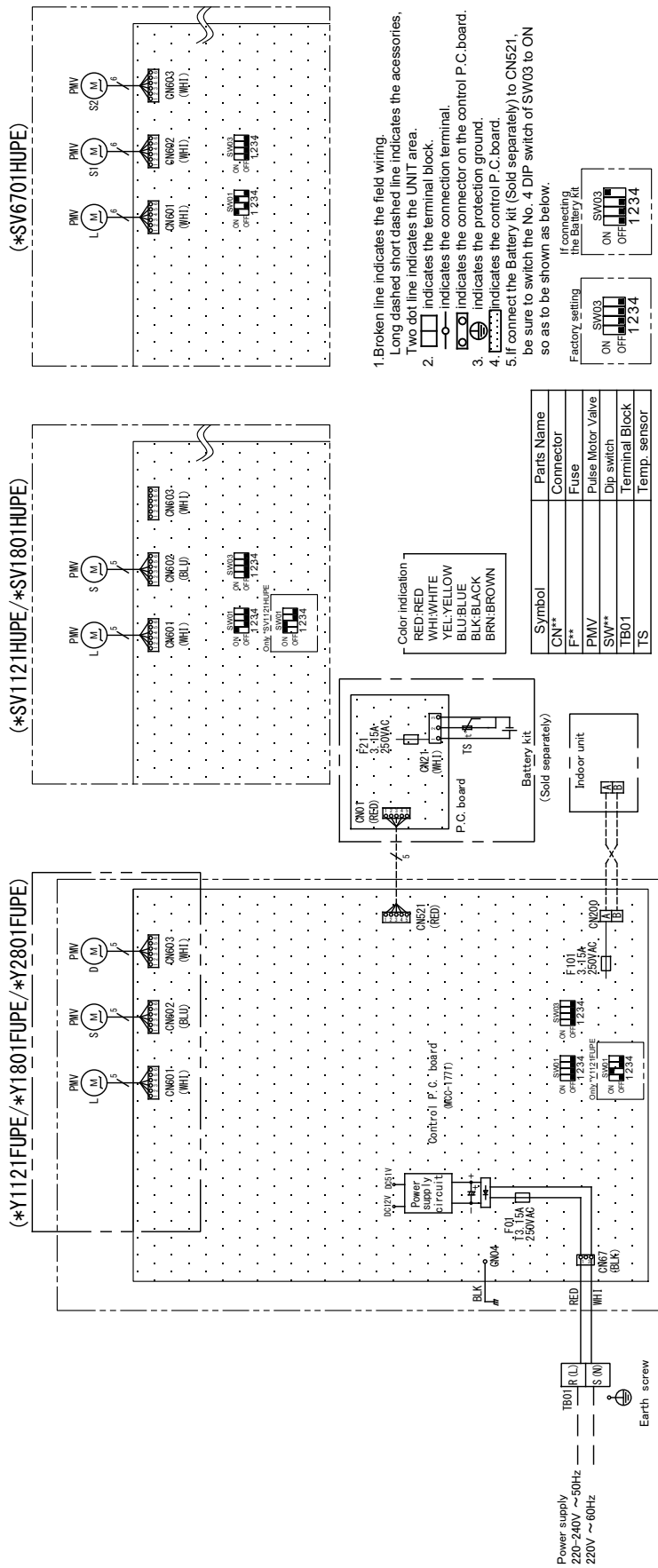
- Select the power supply wiring and fuse of Outdoor/Indoor units according to each model's specification. Perform wiring of power supply complying with the rules and regulations of the local electric company.
- For the control wires connecting Indoor units and between Indoor and Outdoor units, use 2-core and non-polarity shield wires.
- As for details, see the wiring diagram of Indoor/Outdoor/Flow Selector unit.
- Diagram of corrosion heavy protection model is the same as that of standard model.
- Be sure to connect Indoor unit to Port No.1 of Flow Selector unit Multi-port type.

*1. Connect the closed end terminal of shield wire.
(Connected to all connecting sections in each unit.)
*2. Group control.

1-1. Flow Selector unit Multi-port type
Model: RBM-Y1801FU4PE, RBM-Y1801FU8PE, RBM-Y1801FU12PE



1-2. Flow Selector unit Single-port type, Shut-off Valve unit
Model: RBM-Y1121FUPE, RBM-Y1801FUPE, RBM-Y2801FUPE
RBM-SV1121HUPE, RBM-SV1801HUPE, RBM-SV6701HUPE



2. PARTS RATING

2-1. Outdoor Unit (50Hz model: MMY-SUG***1MT8*)

No.	Part name	Model	Specifications	MMY-SUG0801*	MMY-SUG1001*	MMY-SUG1201*	MMY-SUG1401*	MMY-SUG1601*	MMY-SUG1801*	MMY-SUG2001*	MMY-SUG2201*	MMY-SUG2401*
1	Compressor	LX771A3TJB-20M	Output: 4.72kW×1	○								
1	Compressor	LX771A3TJB-20M	Output: 6.35kW×1		○							
1	Compressor	LX771A3TJB-20M	Output: 8.40kW×1			○						
1	Compressor	LX771A3TJB-20M	Output: 11.5kW×1				○					
1	Compressor	RX423A3TJB-20M	Output: 5.60kW×2					○				
1	Compressor	RX423A3TJB-20M	Output: 6.85kW×2						○			
1	Compressor	LX771A3TJB-20M	Output: 7.35kW×2							○		
1	Compressor	LX771A3TJB-20M	Output: 8.38kW×2								○	
1	Compressor	LX771A3TJB-20M	Output: 10.3kW×2									○
2	4-way valve coil	SHF	AC220-240V 50Hz 4WV-1,4WV-2,4WV-3	○	○	○	○	○	○	○	○	○
3	2-way valve coil	FDF	AC220-240V 50Hz SV3D, SV41, SV42, SV2, SV3F	○	○	○	○	○	○	○	○	○
3	2-way valve coil	TEV	AC220-240V 50Hz SV7	○	○	○	○	○	○	○	○	○
4	Pulse motor valve coil	PAM	PMV1	○	○	○	○	○	○	○	○	○
4	Pulse motor valve coil	PQ-M	PMV2, 3, 5, 6	○	○	○	○	○	○	○	○	○
4	Pulse motor valve coil	UKV	PMV4	○	○	○	○	○	○	○	○	○
5	High-pressure SW	ACB-4UB237W	OFF: 4.15MPa ON: 3.2MPa	○	○	○	○	○	○	○	○	○
6	Pressure sensor (For high pressure)	NSK-BH038F-823	0.5 ~ 4.5V / 0 ~ 3.92MPa	○	○	○	○	○	○	○	○	○
7	Pressure sensor (For low pressure)	NSK-BH020F-822	0.5 ~ 3.5V / 0 ~ 2.0MPa	○	○	○	○	○	○	○	○	○
8	Fan motor	WDF-620B1000-1	DC650V/1000W	○	○	○	○	○	○	○	○	○
9	Case heater (For comp.)	-	AC240V/29W	○	○	○	○	○	○	○	○	○

2-1-1. Winding resistance of outdoor unit main parts

<table>
<tr><th>No.</th><th>Part name</th><th>Checking procedure</th></tr>
<tr><td>1</td><td>Compressor
(Model:RX423A3TJB-20M)</td><td>Measure and compare each winding resistance by digital tester.
<table><tr><th>Position</th><th>Resistance value</th></tr><tr><td>Red-White</td><td rowspan="3">0.517±0.026Ω</td></tr><tr><td>White-Black</td></tr><tr><td>Black-Red</td></tr></table>(all same resistance is ok.) at 20℃</td></tr>
<tr><td>2</td><td>Compressor
(Model:LX771A3TJB-20M)</td><td>Measure and compare each winding resistance by digital tester.
<table><tr><th>Position</th><th>Resistance value</th></tr><tr><td>Red-White</td><td rowspan="3">0.242±0.012Ω</td></tr><tr><td>White-Black</td></tr><tr><td>Black-Red</td></tr></table>(all same resistance is ok.) at 20℃</td></tr>
<tr><td>3</td><td>Fan motor
(Model:WDF-620B1000-1)</td><td>Measure and compare each winding resistance by digital tester.
<table><tr><th>Position</th><th>Resistance value</th></tr><tr><td>Red-White</td><td rowspan="3">9.6Ω±0.96Ω</td></tr><tr><td>White-Black</td></tr><tr><td>Black-Red</td></tr></table>(all same resistance is ok.) at 20℃</td></tr>
<tr><td>4</td><td>Fan motor
(Model:PQ-M10012)</td><td>Measure and compare each winding resistance by digital tester.
<table><tr><th>Position</th><th>Resistance value</th></tr><tr><td>White-Red(COM)</td><td rowspan="4">46Ω±3.7</td></tr><tr><td>Yellow-Red(COM)</td></tr><tr><td>Orange-Red(COM</td></tr><tr><td>Blue-Red(COM)</td></tr></table>at 20℃</td></tr>
<tr><td>5</td><td>PMV(Pulse Motor Valve)coil
(Model:UKV-A376)</td><td>Measure each winding resistance by digital tester.
<table><tr><th>Position</th><th>Resistance value</th></tr><tr><td>White-Red(COM)</td><td rowspan="4">46Ω±3</td></tr><tr><td>Yellow-Red(COM)</td></tr><tr><td>Orange-Red(COM</td></tr><tr><td>Blue-Red(COM)</td></tr></table>at 20℃</td></tr>
<tr><td>6</td><td>PMV(Pulse Motor Valve)coil
(Model:PAM-MD12TF)</td><td>Measure each winding resistance by digital tester.
<table><tr><th>Position</th><th>Resistance value</th></tr><tr><td>White-Red(COM)</td><td rowspan="4">100Ω±10</td></tr><tr><td>Yellow-Red(COM)</td></tr><tr><td>Orange-Red(COM</td></tr><tr><td>Blue-Red(COM)</td></tr></table>at 20℃</td></tr>
<tr><td>7</td><td>4-way valve coil
(Model:SQA2522G)</td><td>Measure each winding resistance by digital tester.
<table><tr><th>Resistance value</th></tr><tr><td>2085Ω±7%</td></tr></table>at 20℃</td></tr>
<tr><td>8</td><td>2-way valve coil
(Model:FQ-A0522G)</td><td>Measure each winding resistance by digital tester.
<table><tr><th>Resistance value</th></tr><tr><td>2085Ω±7%</td></tr></table>at 20℃</td></tr>
<tr><td>9</td><td>2-way valve coil
(Model:TEV-SMOAJ2170B)</td><td>Measure each winding resistance by digital tester.
<table><tr><th>Resistance value</th></tr><tr><td>2163Ω±7%</td></tr></table>at 20℃</td></tr>
</table>

2-2. Inverter Assembly

No	Name	Model	Specification	MMY-SUG0801*	MMY-SUG1001*	MMY-SUG1201*	MMY-SUG1401*	MMY-SUG1601*	MMY-SUG1801*	MMY-SUG2001*	MMY-SUG2201*	MMY-SUG2401*
1	Power supply terminal block	JXO-6004	AC600V/75A, 4P	○	○	○	○	○	○	○	○	○
2	Noise Filter P.C. board (1)	MCC-1748	-	○	○	○	○					
3	Noise Filter P.C. board (2)	MCC-1748	-					○	○	○	○	○
4	Line filter		0.9mH/AC460V/50A					○	○	○	○	○
5	Interface P.C. board	MCC-1747	-	○	○	○	○	○	○	○	○	○
6	Inverter P.C. board for Compressor (1)	MCC-1729	35A					○	○			
7	Inverter P.C. board for Compressor (2)	MCC-1729	50A	○	○	○	○			○	○	○
8	Inverter P.C. board for fan	MCC-1734	-	○	○	○	○	○	○	○	○	○
9	Magnet Contactor	FC-1S Z675	-	○	○	○	○	○	○	○	○	○
10	PTC Thermistor	MZ32-101R	13A/AC500V	○	○	○	○	○	○	○	○	○

2-3. Flow Selector unit (Multi-port , Single-port) / Shut-off Valve unit

No.	Parts Name	Model	Specification	FS unit (Multi-port)			FS unit (Single-port)			Shut-off Valve unit		
				RBM-Y1801FU4PE	RBM-Y1801FU8PE	RBM-Y1801FU12PE	RBM-Y1121FUPE	RBM-Y1801FUPE	RBM-Y2801FUPE	RBM-SV1121HUPE	RBM-SV1801HUPE	RBM-SV6701HUPE
1	Pulse motor valve coil	PAM-MD12TF-305 PMV-L, D	DC12V, Connector : White	○	○	○	○	○	○	○	○	
		PAM-MD12TF-306 PMV-S	DC12V, Connector : Blue	○	○	○	○	○	○	○	○	
		PQ-M10012 PMV-L, S1, S2	DC12V, Connector : White									○
2	P.C. board	MCC-1770	-	○	○	○						
		MCC-1771	-				○	○	○	○	○	○

2-4. Battery kit

No.	Parts Name	Model	Specification	TCB-BT1UPE
1	Battery Assembly (Ni-MH)	T6BK120AAHU	Nominal voltage: 7.2V	○
2	P.C. board	MCC-1772	-	○

2-5. Leak Detector

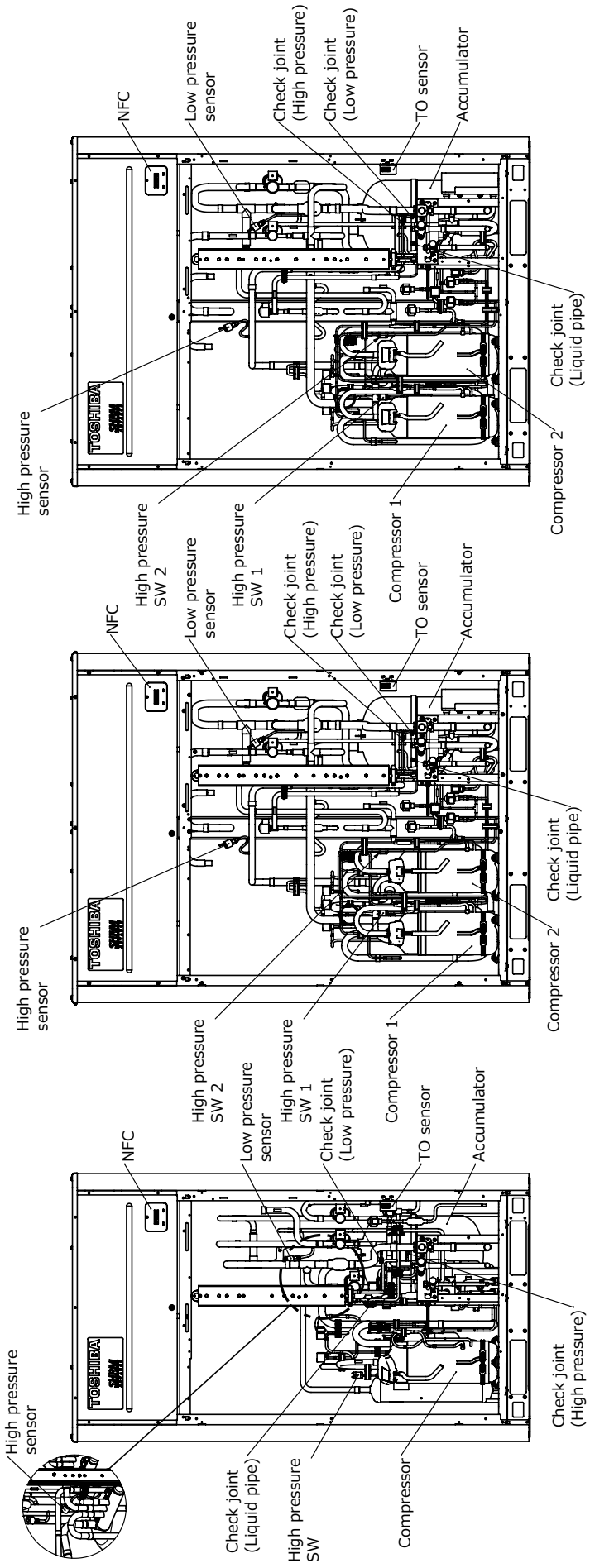
No.	Parts Name	Model	Specification	TCB-LD1UPE
1	Refrigerant sensor module	FIS-5084	DC5V	○
2	P.C. board	MCC-1782	-	○

2-6. Parts Layout in Outdoor Unit

8,10,12,14HP
MODEL:
MMY-SUG0801*
MMY-SUG1001*
MMY-SUG1201*
MMY-SUG1401*

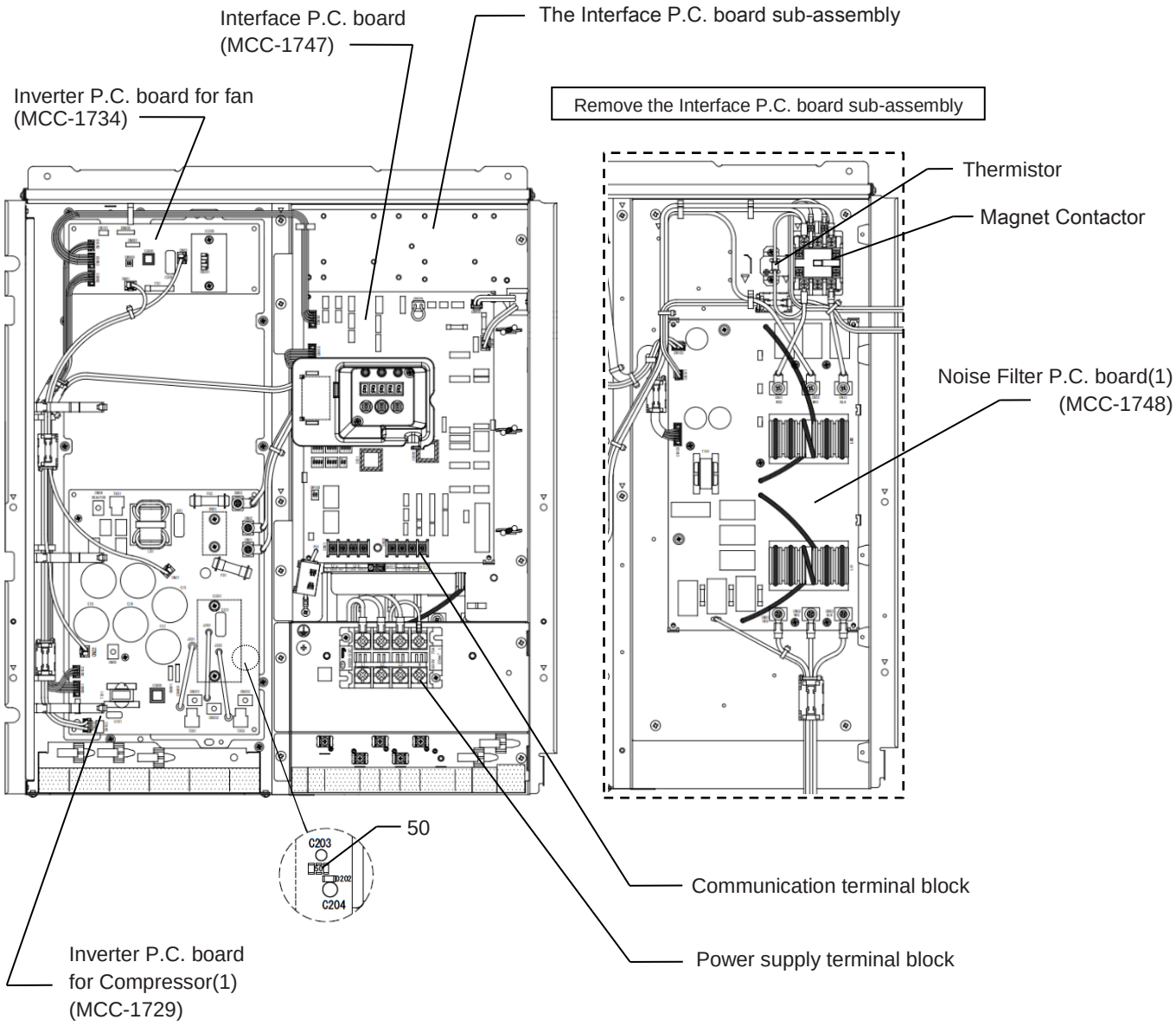
16,18HP
MODEL:
MMY-SUG1601*
MMY-SUG1801*

20,22,24HP
MODEL:
MMY-SUG2001*
MMY-SUG2201*
MMY-SUG2401*



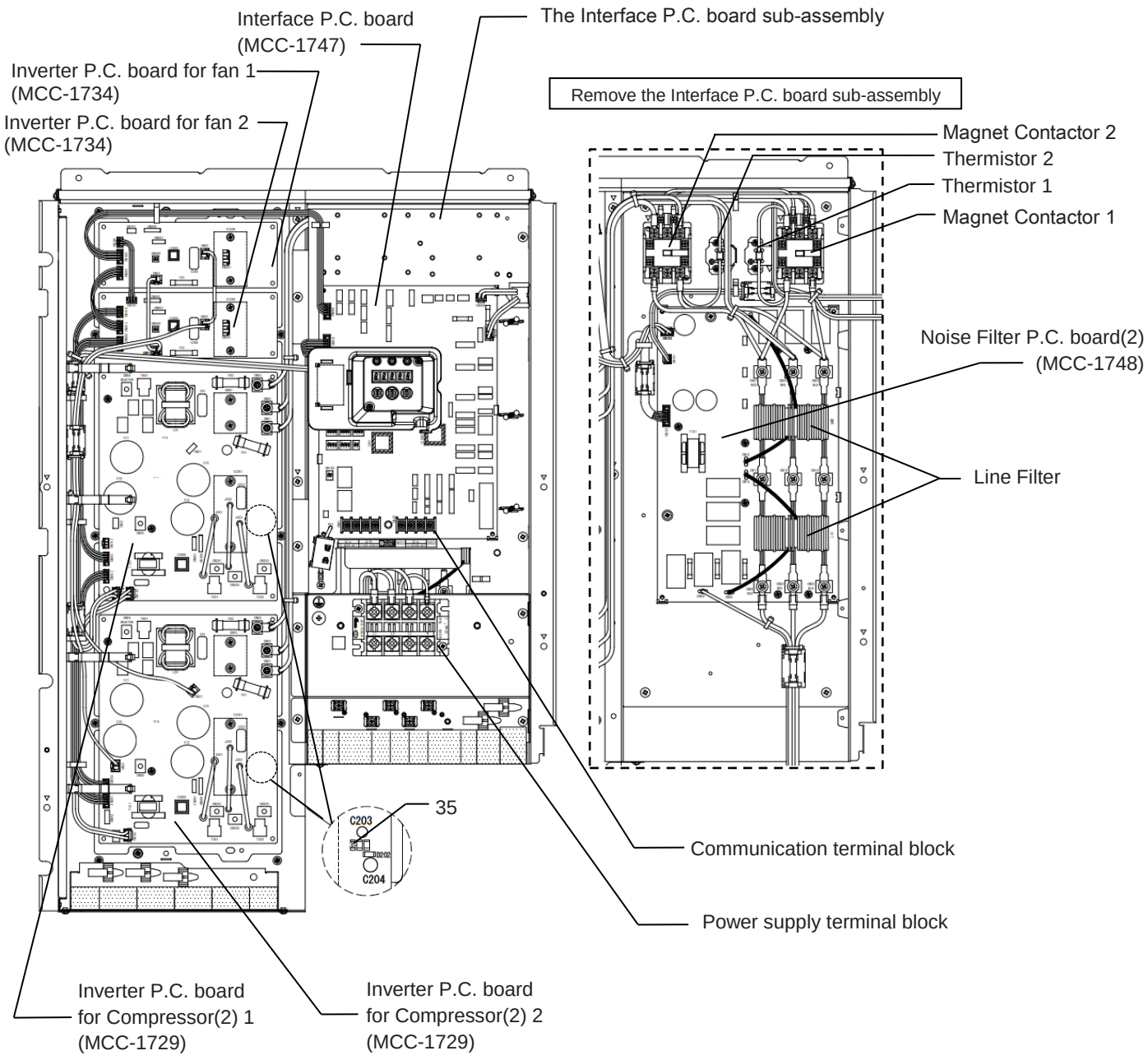
2-7. Parts Layout in Inverter Assembly

8, 10, 12, 14HP
Model: MMY-SUG0801*, SUG1001*, SUG1201*, SUG1401*



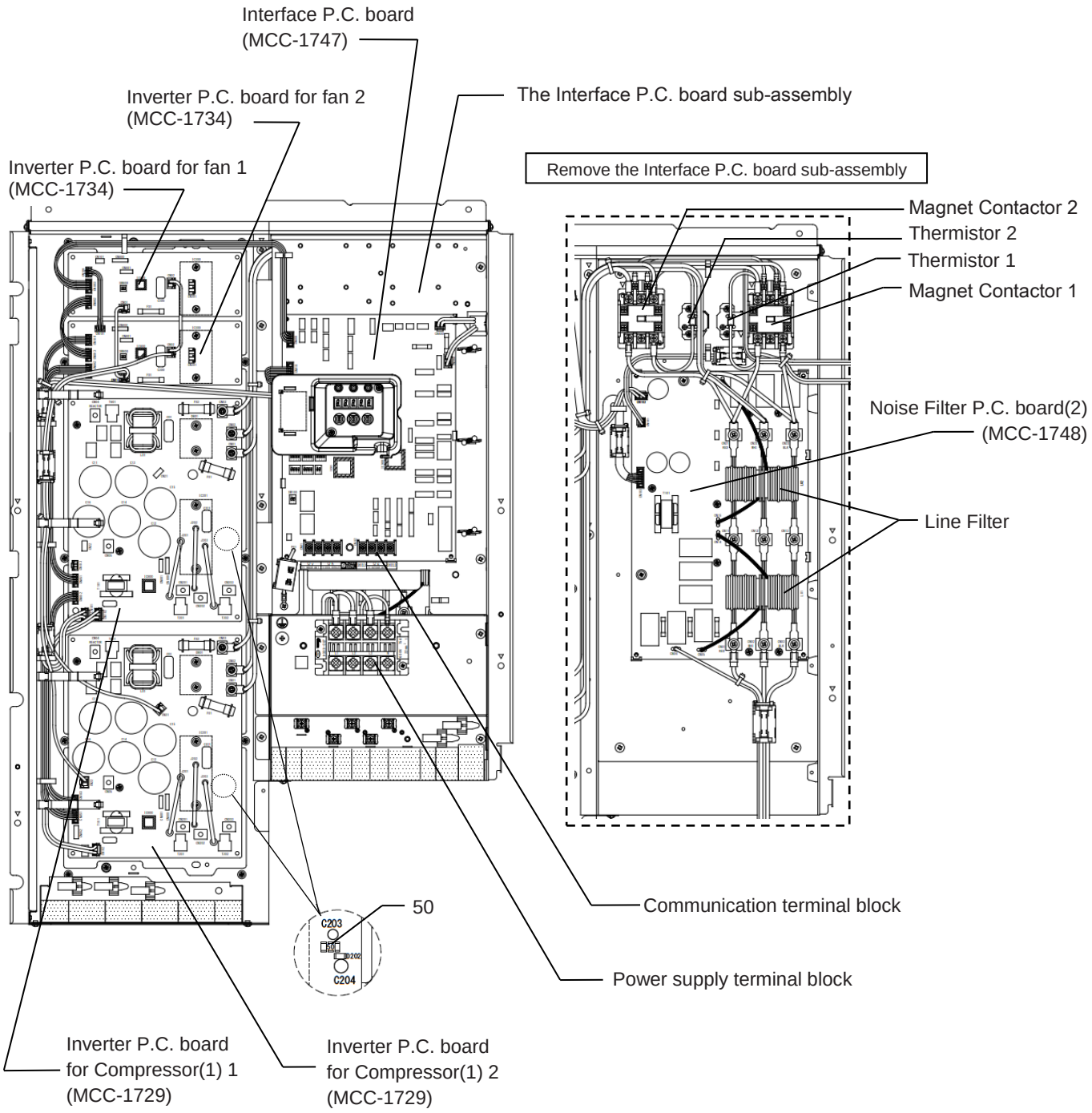
16, 18HP

Model: MMY-SUG1601*, SUG1801*

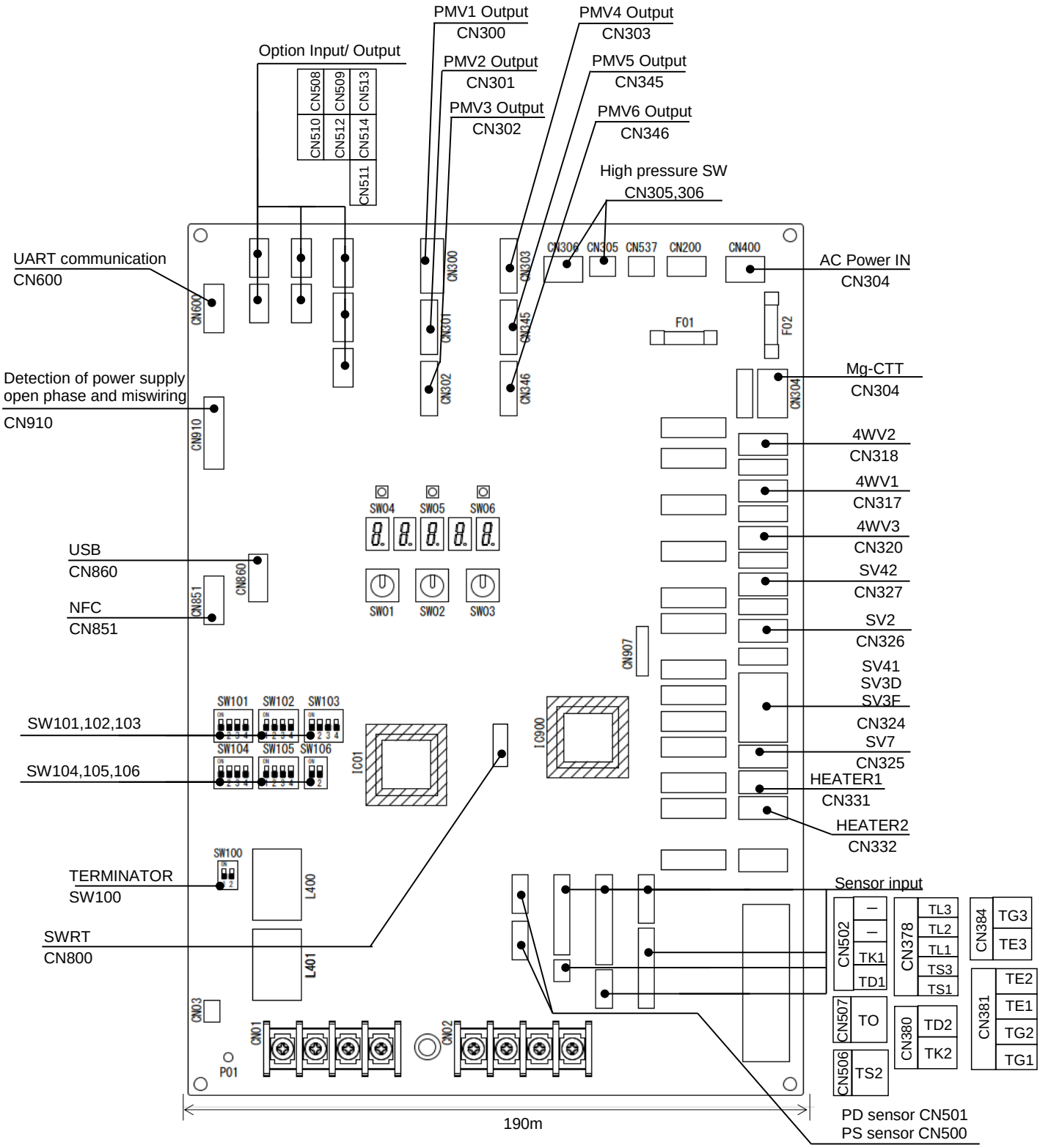


20, 22, 24HP

Model: MMY-SUG2001*, SUG2201*, SUG2401*

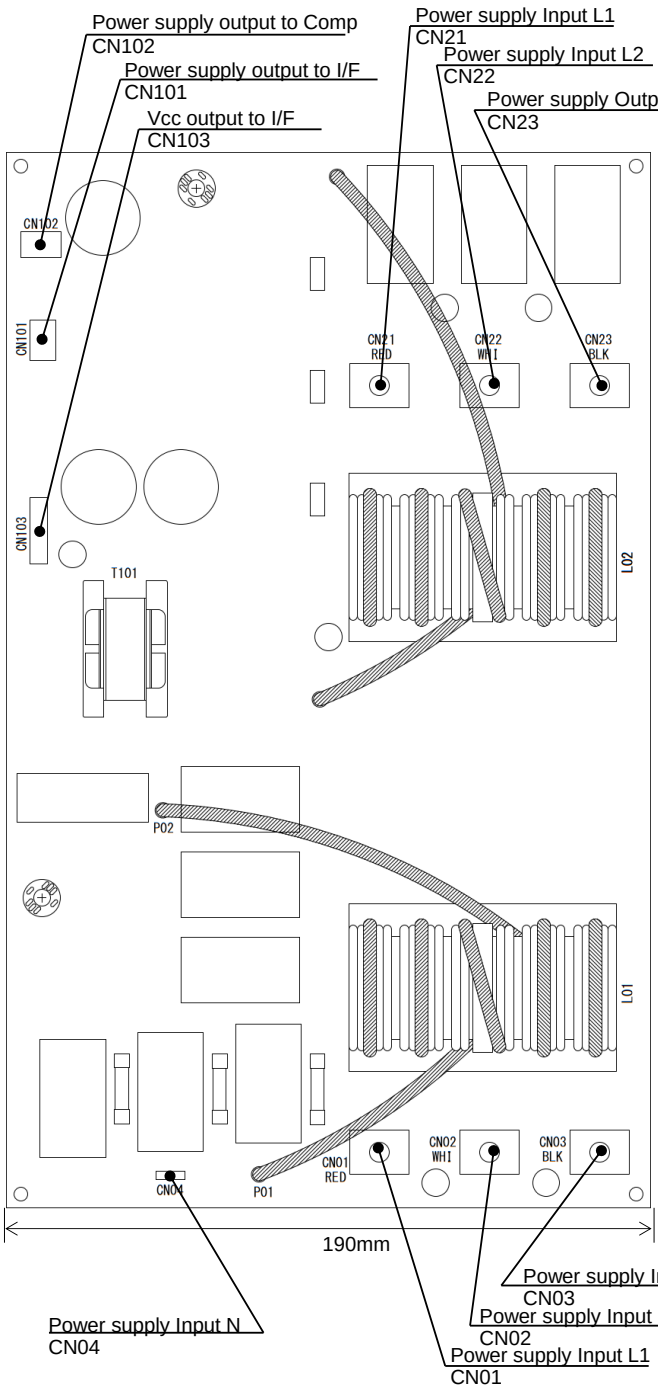


2-8. Outdoor (Inverter) Print Circuit Board
2-8-1. Interface P.C. board (MCC-1747)

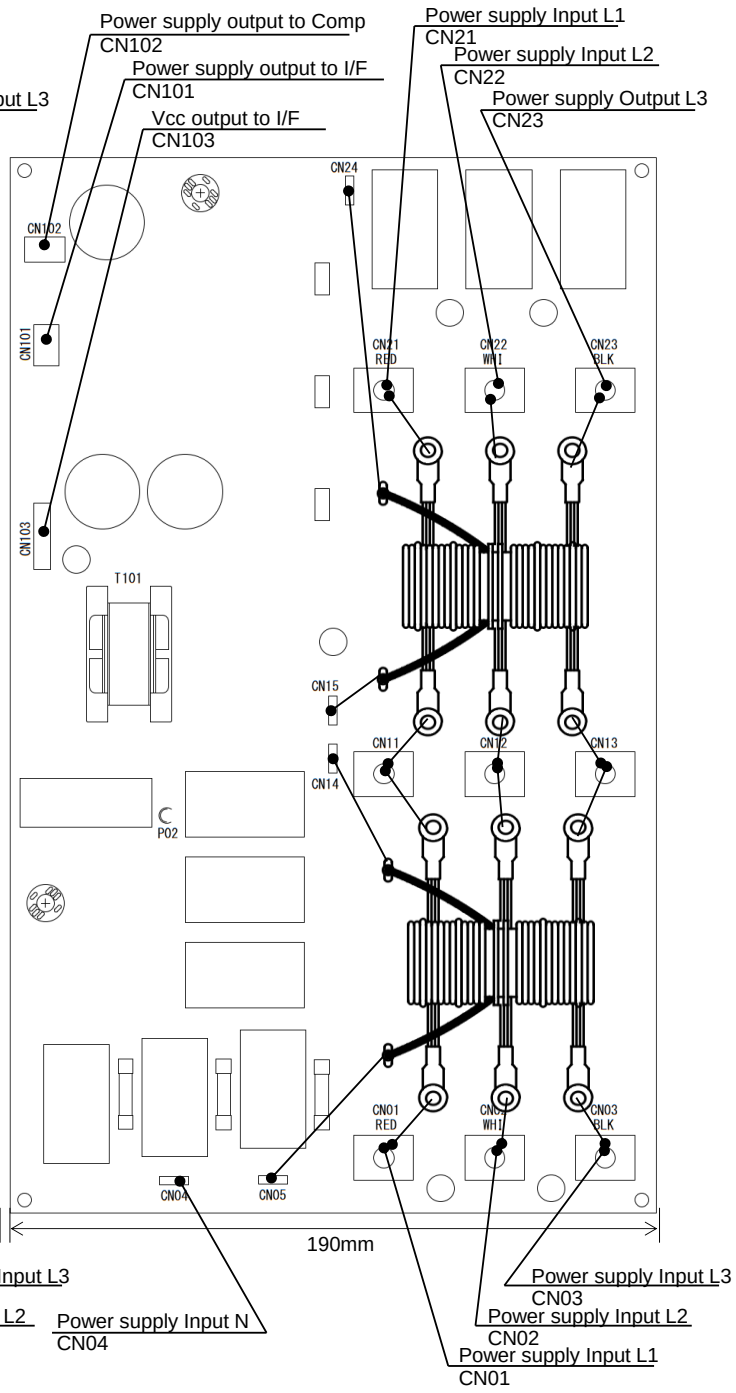


2-8-2. Noise Filter P.C. board (MCC-1748)

990W 1Comp 1Fan model (A3 Compressor)
(8/10/12/14HP)



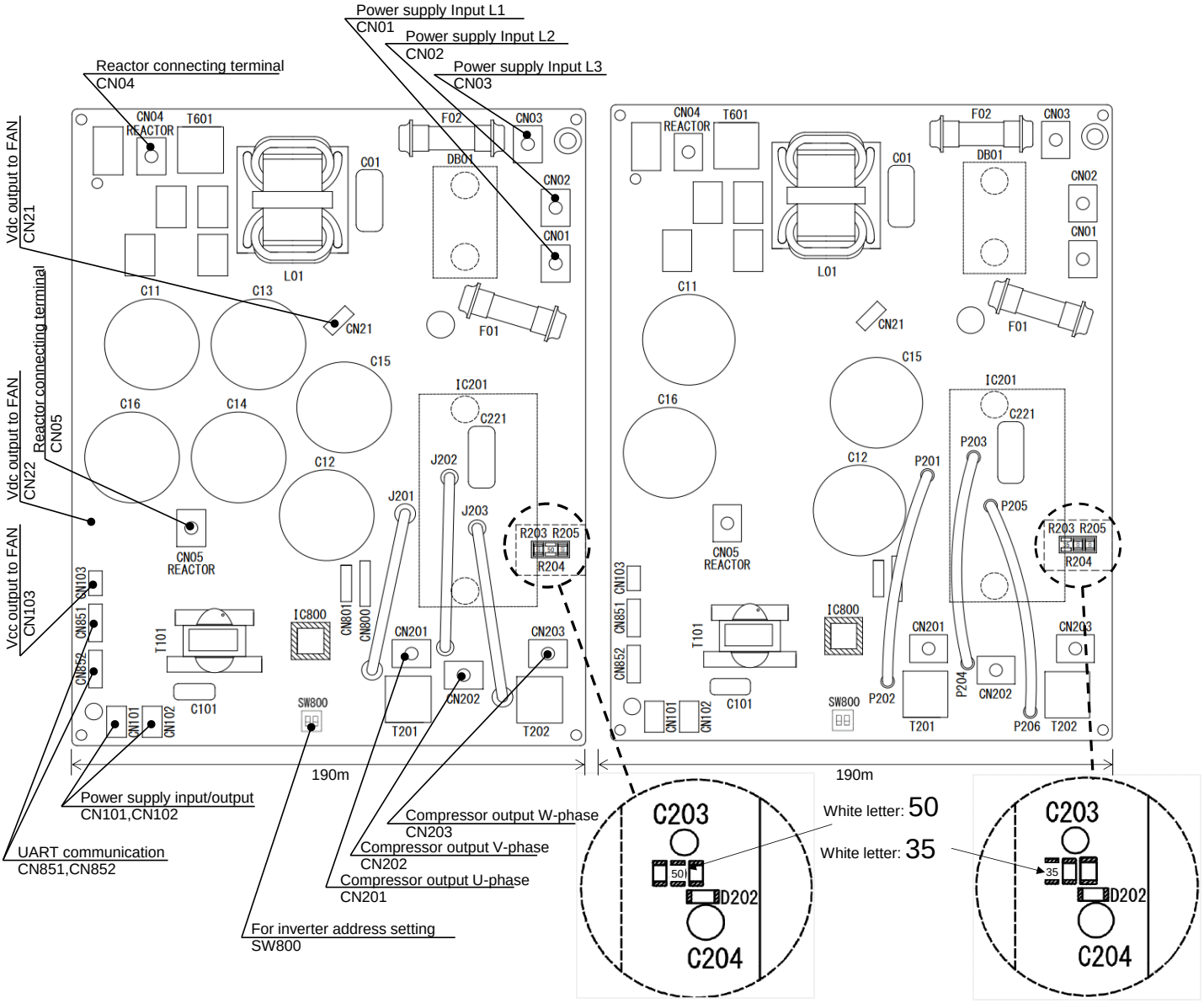
1290W 2Comp 2Fan model (A3 Compressor)
(16/18/20/22/24HP)



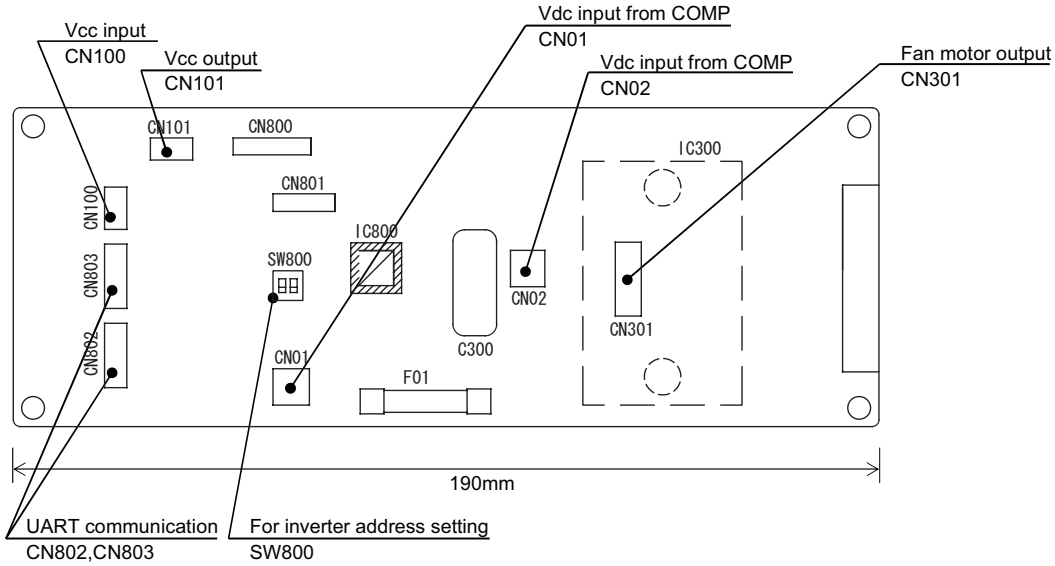
2-8-3. Inverter P.C. board for compressor (MCC-1729)

1290W 2Comp 2Fan model (A3 Compressor) (20/22/24HP)
990W 1Comp 1Fan model (A3 Compressor) (8/10/12/14HP)

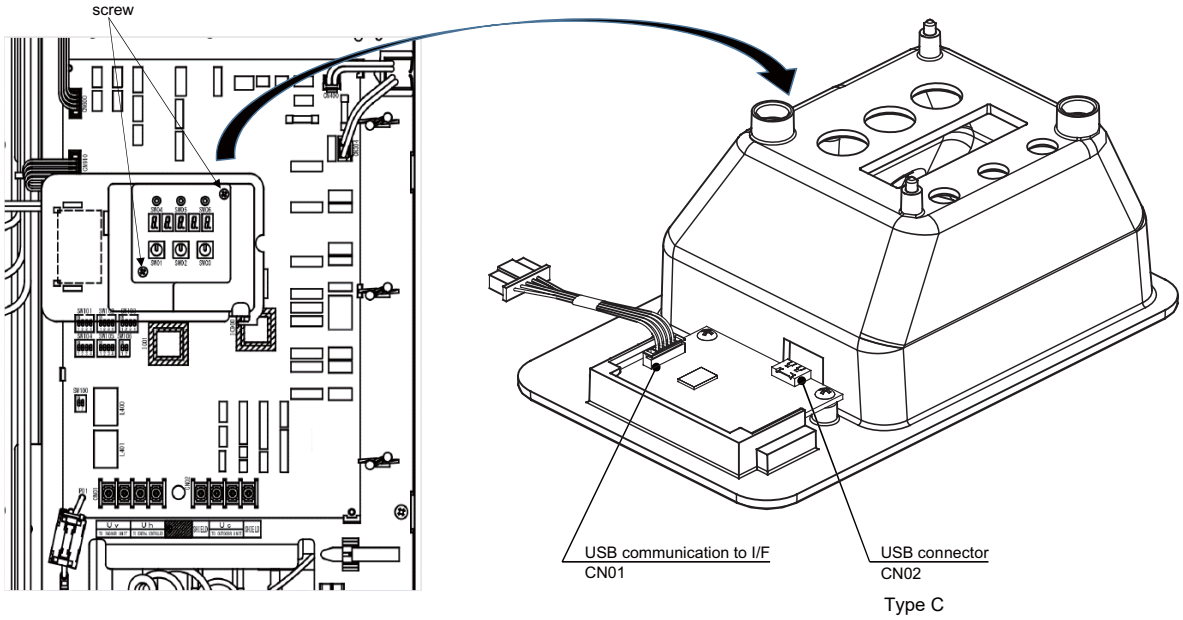
1290W 2Comp 2Fan model (A3 Compressor) (16/18HP)



2-8-4. Inverter P.C. board for fan (MCC-1734)



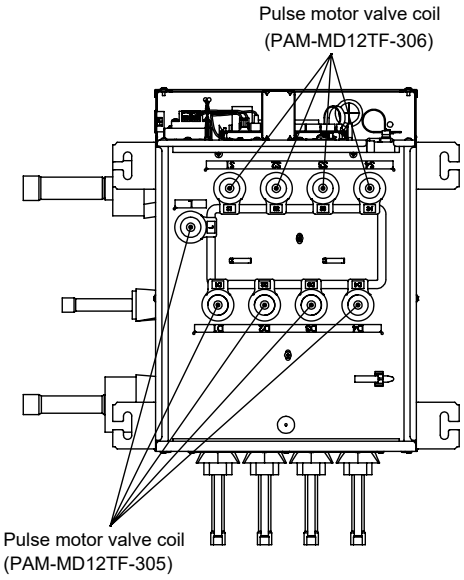
2-8-5. USB isolate P.C. board (MCC-1754)



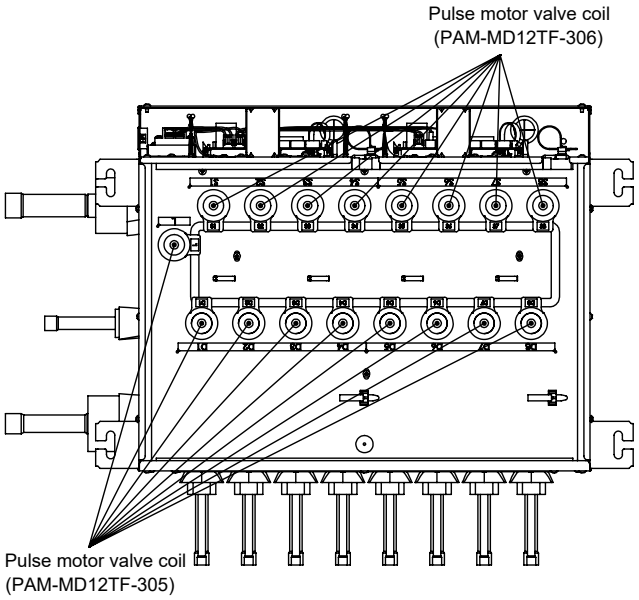
2-9. Parts Layout in Flow Selector unit, Shut-off Valve unit, Battery kit and Leak Detector

Parts Layout in Flow Selector unit Multi-port type

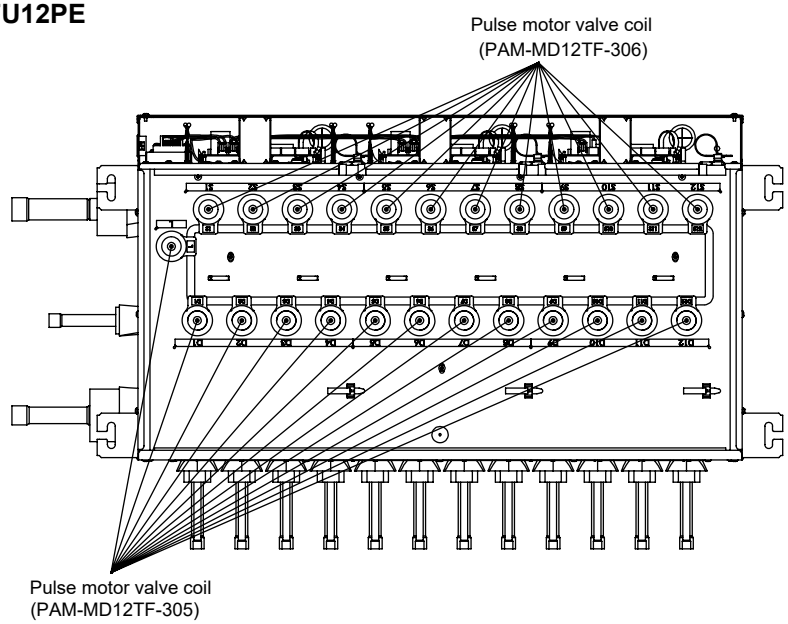
Model: RBM-Y1801FU4PE



Model: RBM-Y1801FU8PE

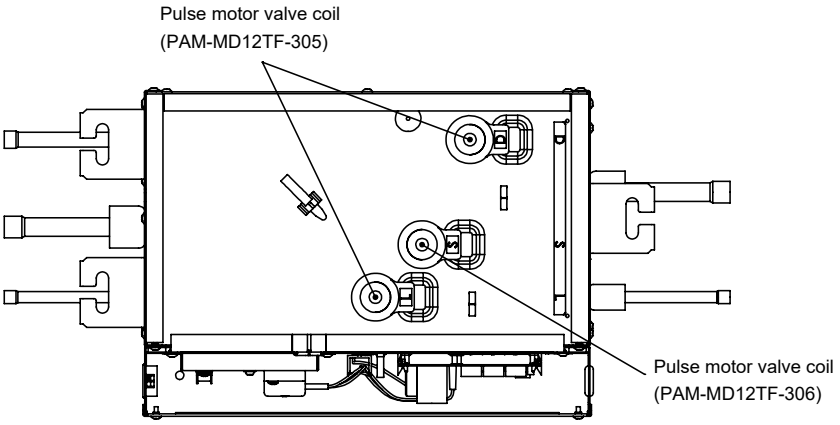


Model: RBM-Y1801FU12PE



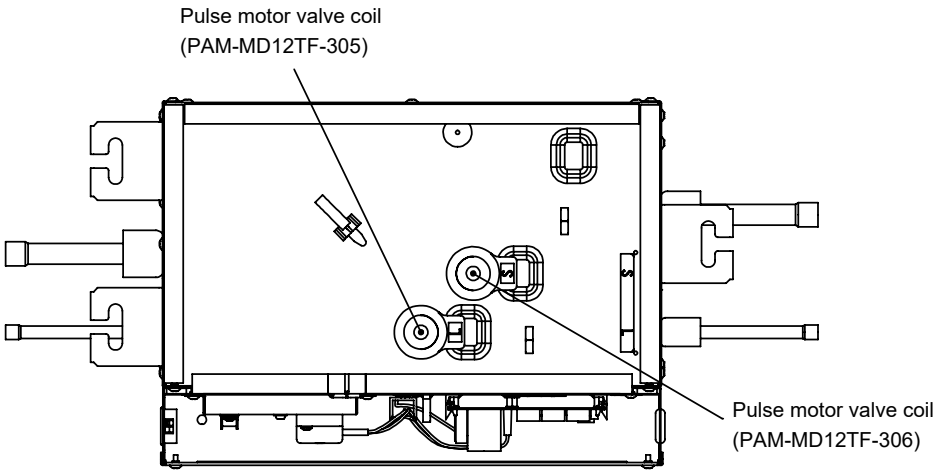
Parts Layout in Flow Selector unit Single-port type

Model
RBM-Y1121FUPE
RBM-Y1801FUPE
RBM-Y2801FUPE

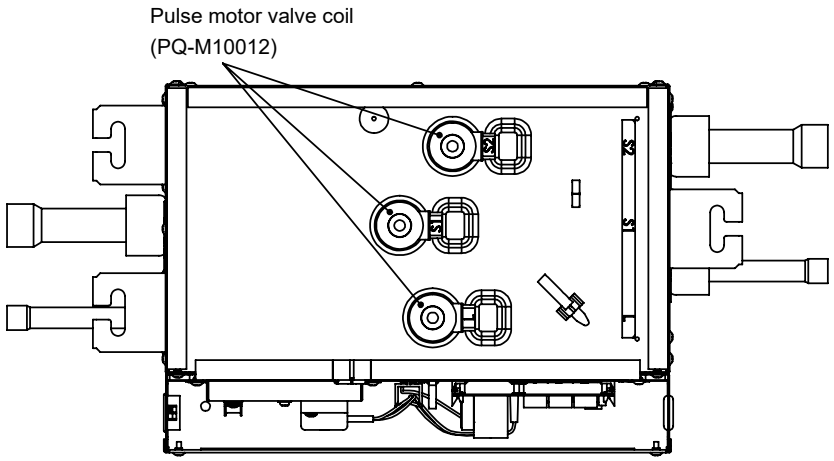


Parts Layout in Shut-off Valve unit

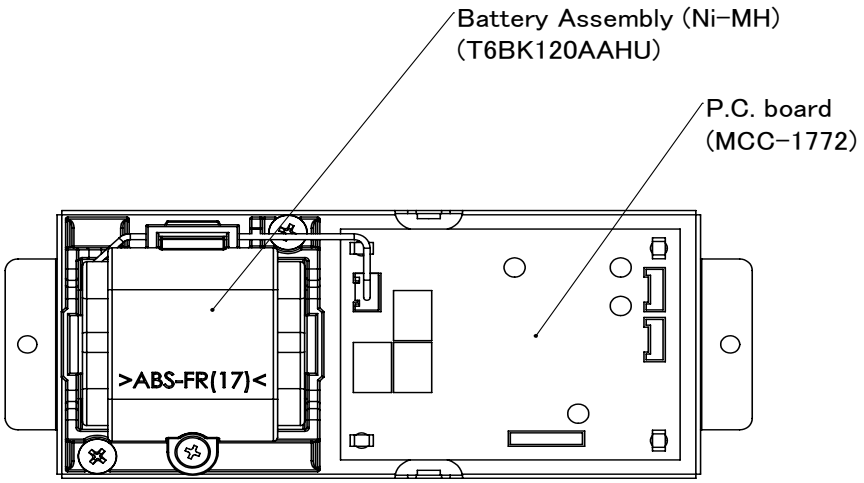
Model: RBM-SV1121HUPE
RBM-SV1801HUPE



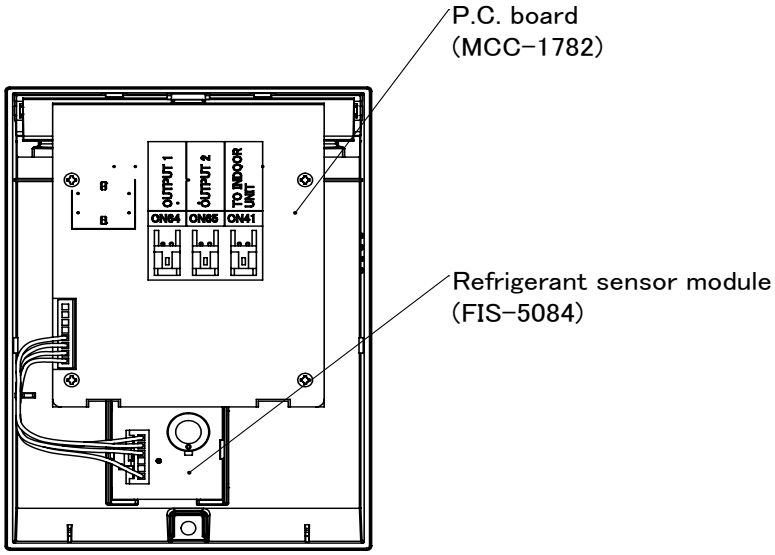
Model: RBM-SV6701HUPE



Part layout in Battery kit
model : TCB-BT1UPE

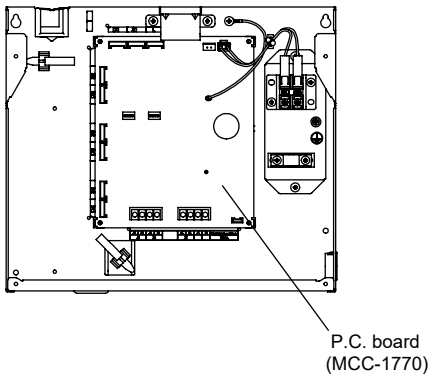


Part layout in Leak Detector
model : TCB-LD1UPE

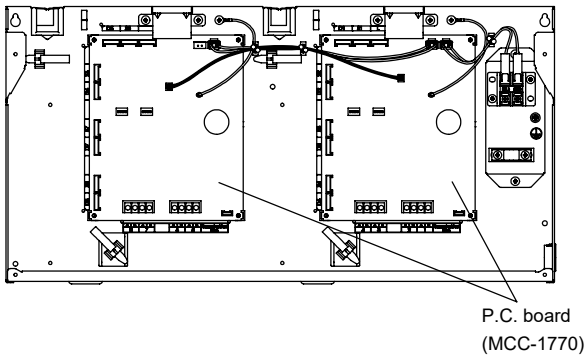


2-10. Parts Layout in Electric Part Assembly (Flow Selector unit, Shut-off Valve unit)

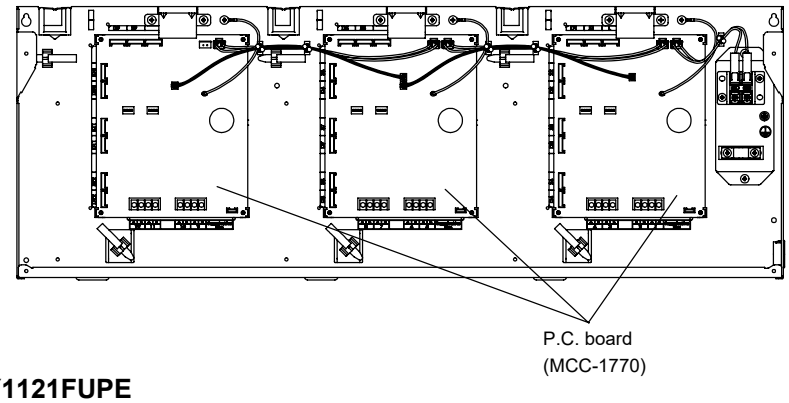
Model: RBM-Y1801FU4PE



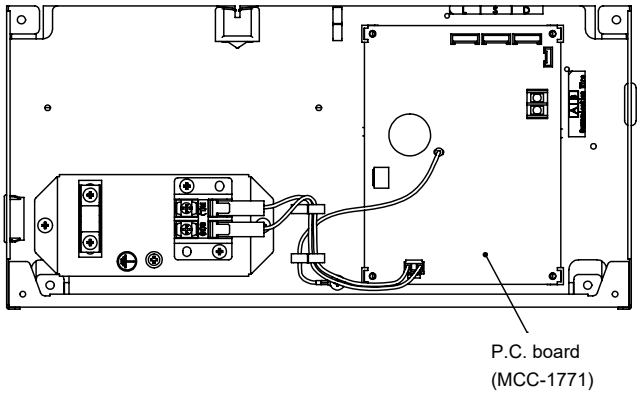
Model: RBM-Y1801FU8PE



Model: RBM-Y1801FU12PE

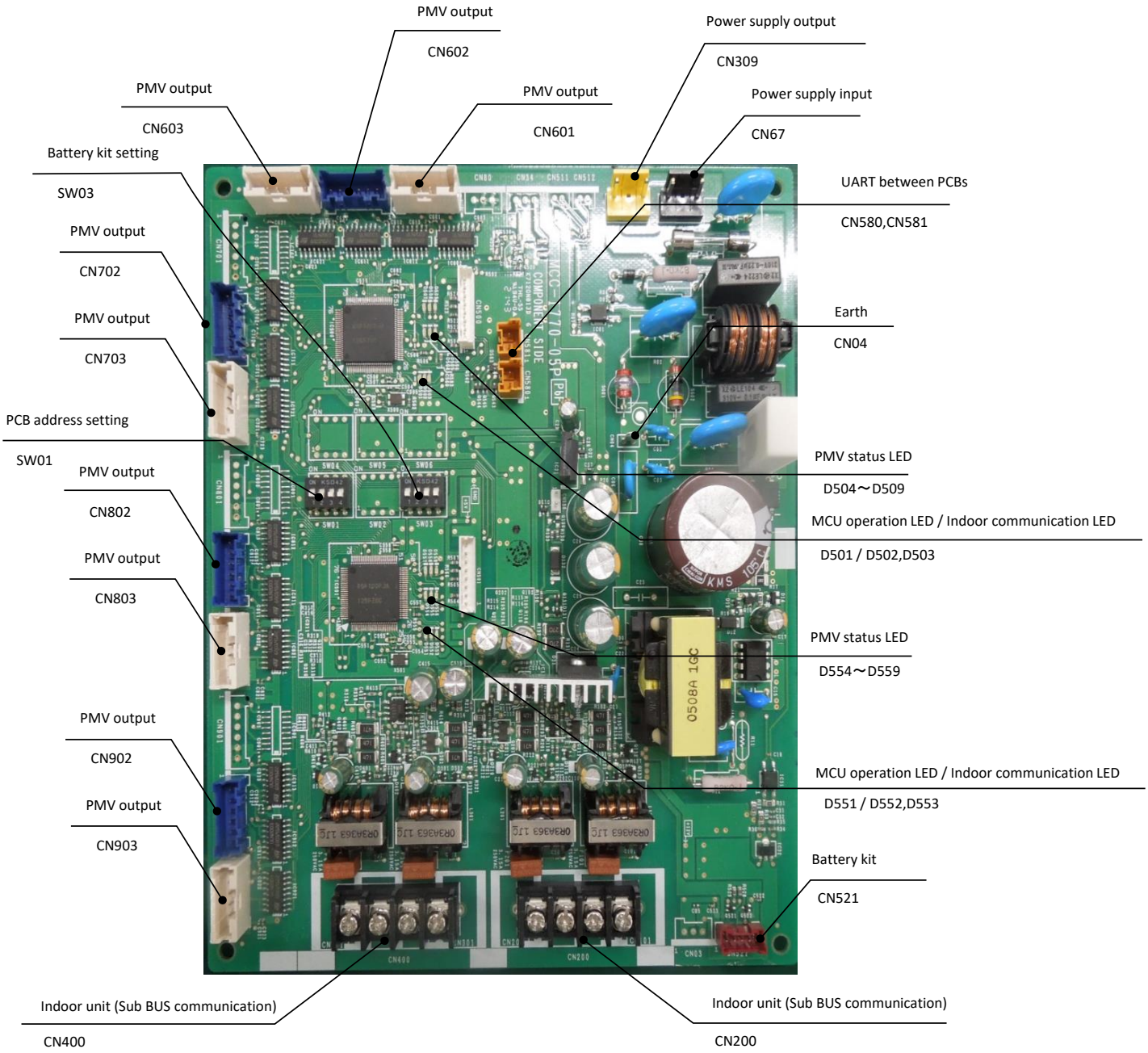


Model: RBM-Y1121FUPE
RBM-Y1801FUPE
RBM-Y2801FUPE
RBM-SV1121HUPE
RBM-SV1801HUPE
RBM-SV6701HUPE



2-11. Flow Selector Unit, Shut-off Valve Unit and Battery kit and Leak detector Print Circuit Board

2-11-1. Flow Selector unit multi type P.C. board (MCC-1770)



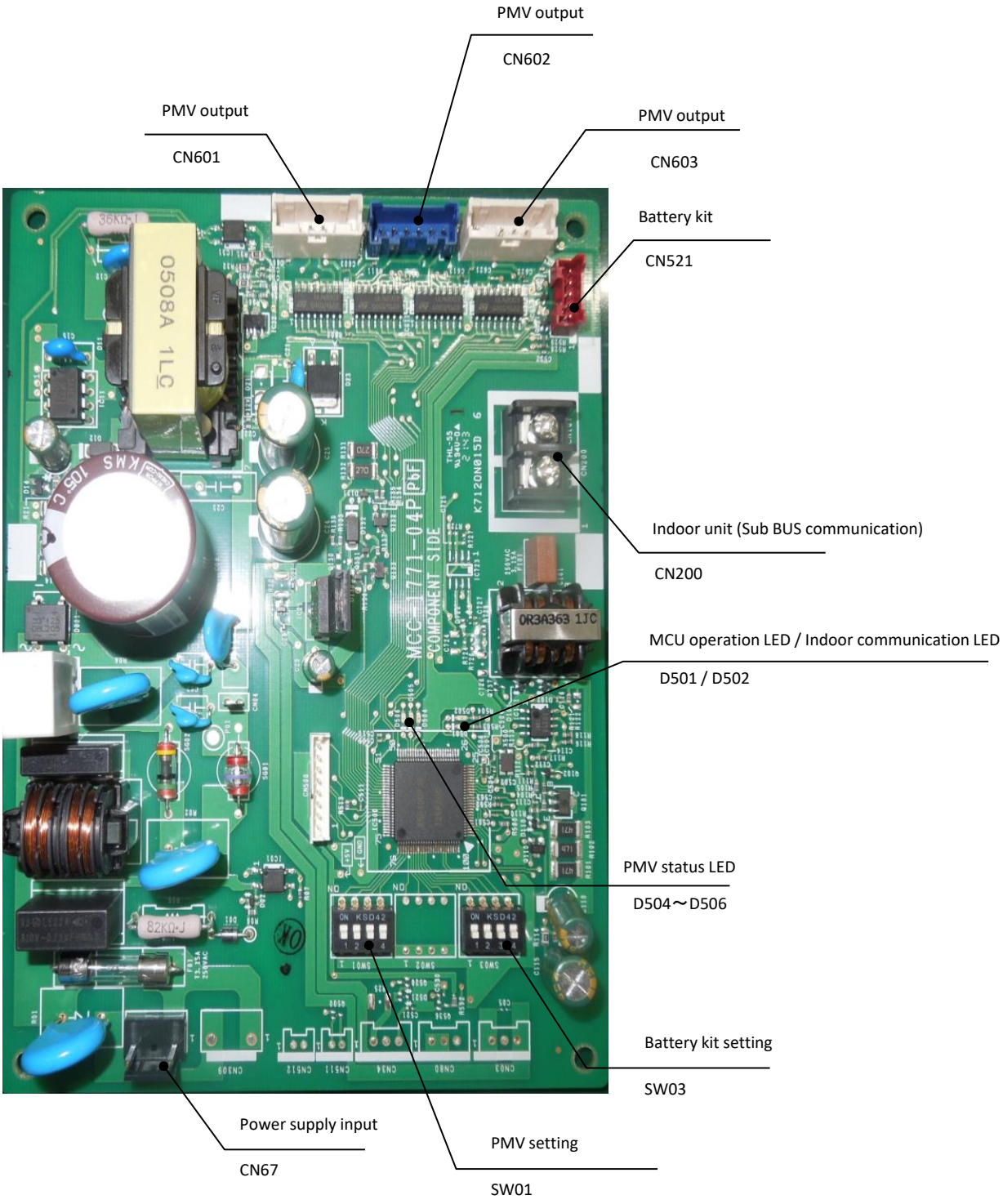
PMV status LED

Part No	LED Color	Applicable PMV	LED and PMV status		
			LED Light	LED Off	LED Flashing
D504	RED	PMV-L	Open	Shut	Valve is working (opening or shutting)
D505	GREEN	PMV-S1			
D506	YELLOW	PMV-D1			
D508	GREEN	PMV-S2			
D509	YELLOW	PMV-D2			
D555	GREEN	PMV-S3			
D556	YELLOW	PMV-D3			
D558	GREEN	PMV-S4			
D559	YELLOW	PMV-D4			

MCU operation LED / Indoor communication LED

Part No	LED Color	LED and status
D501	RED	When MCU(IC501) operations, LED light
D502	GREEN	When SUB BUS of unit 1 can communication with indoor unit , LED light
D503	GREEN	When SUB BUS of unit 2 can communication with indoor unit , LED light
D551	RED	When MCU(IC551) operation, LED light
D552	GREEN	When SUB BUS of unit 3 can communication with indoor unit , LED light
D553	GREEN	When SUB BUS of unit 4 can communication with indoor unit , LED light

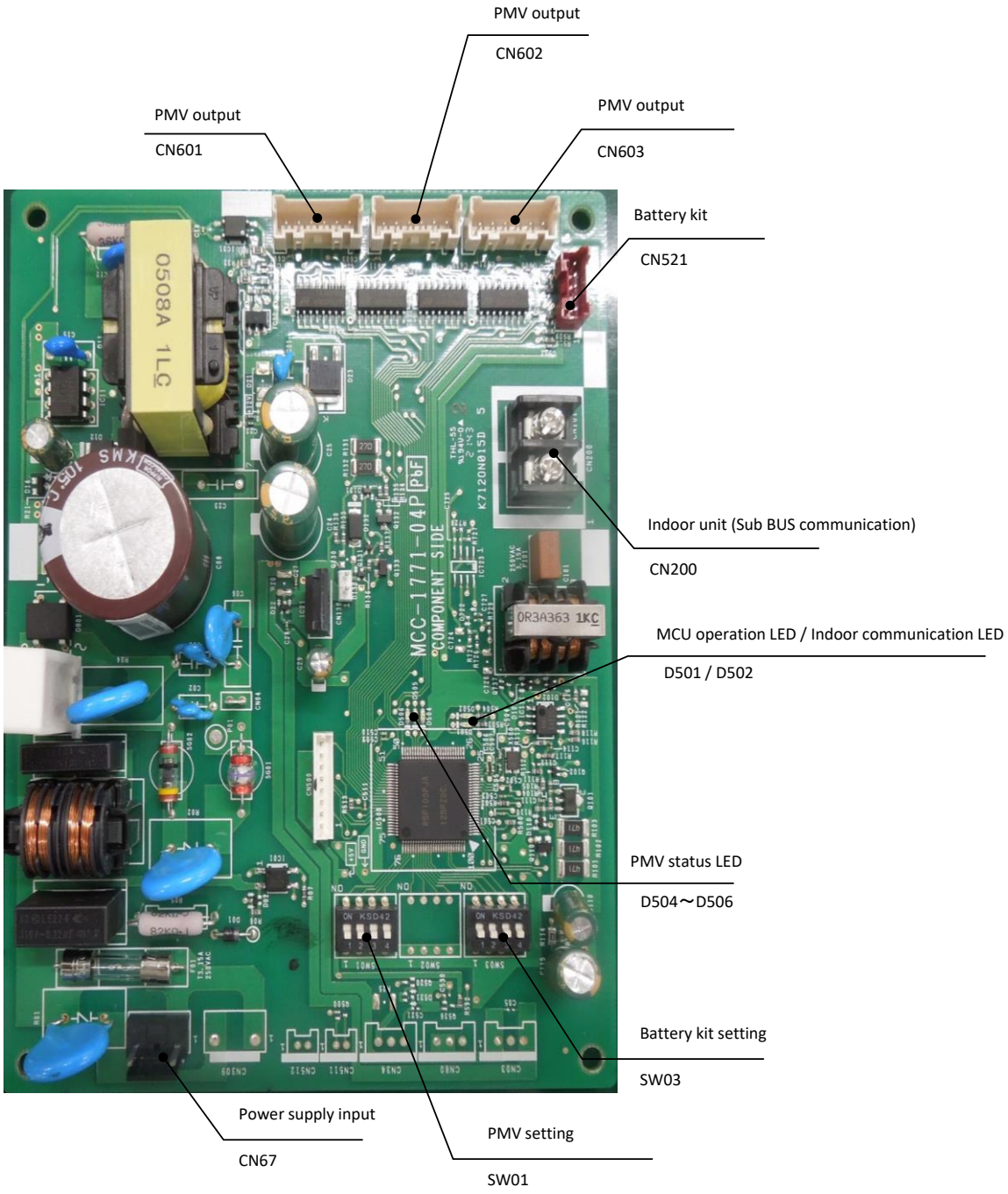
2-11-2. Flow Selector unit single type & Shut-off P.C. board (MCC-1771)



MCU operation LED / Indoor communication LED

Part No	LED Color	Applicable PMV	LED and PMV status		
			LED Light	LED OFF	LED Flashing
D504	RED	PMV-L	Open	Shut	Valve is working (opening or shutting)
D505	GREEN	PMV-S			
D506	YELLOW	PMV-D			

2-11-3. Shut-off 24HP P.C.board (MCC-1771)



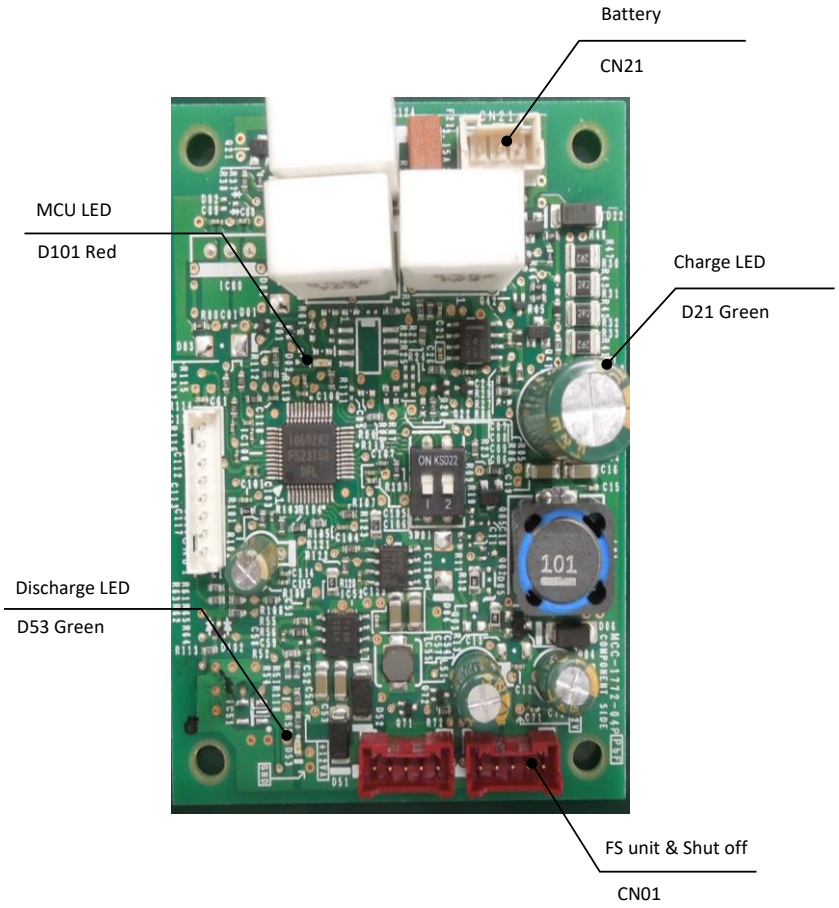
PMV status LED

Part No	LED Color	Applicable PMV	LED and PMV status		
			LED Light	LED OFF	LED Flashing
D504	RED	PMV-L	Open	Shut	Valve is working (opening or shutting)
D505	GREEN	PMV-S1			
D506	YELLOW	PMV-S2			

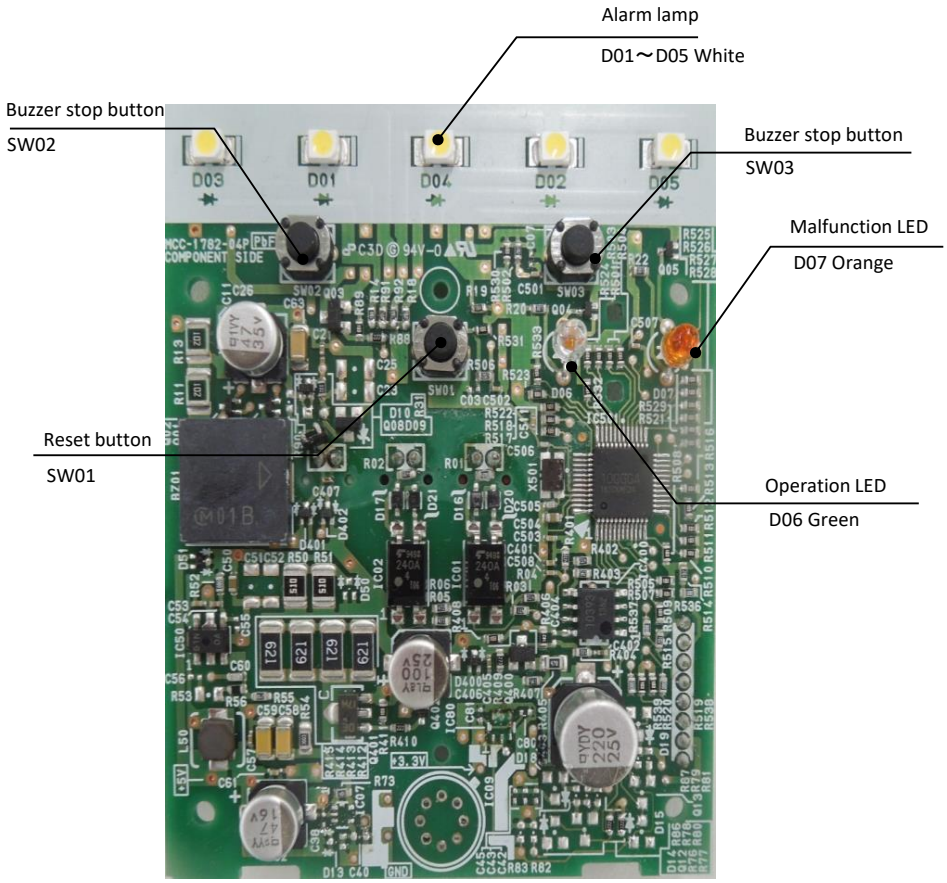
MCU operation LED / Indoor communication LED

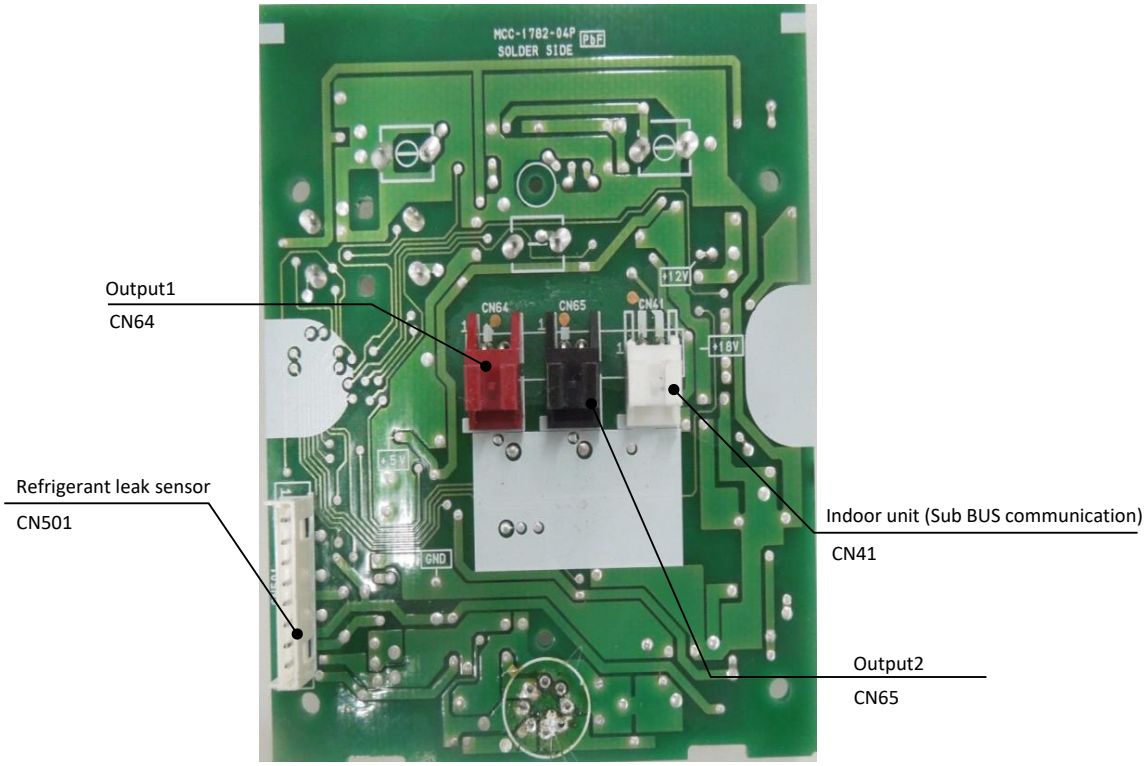
Part No	LED Color	LED and status
D501	RED	When MCU(IC501) operations, LED light
D502	GREEN	When SUB BUS of unit 1 can communication with indoor unit , LED light

2-11-4. Battery kit P.C.board (MCC-1772)



2-11-5. Leak Detector P.C.board (MCC-1782)



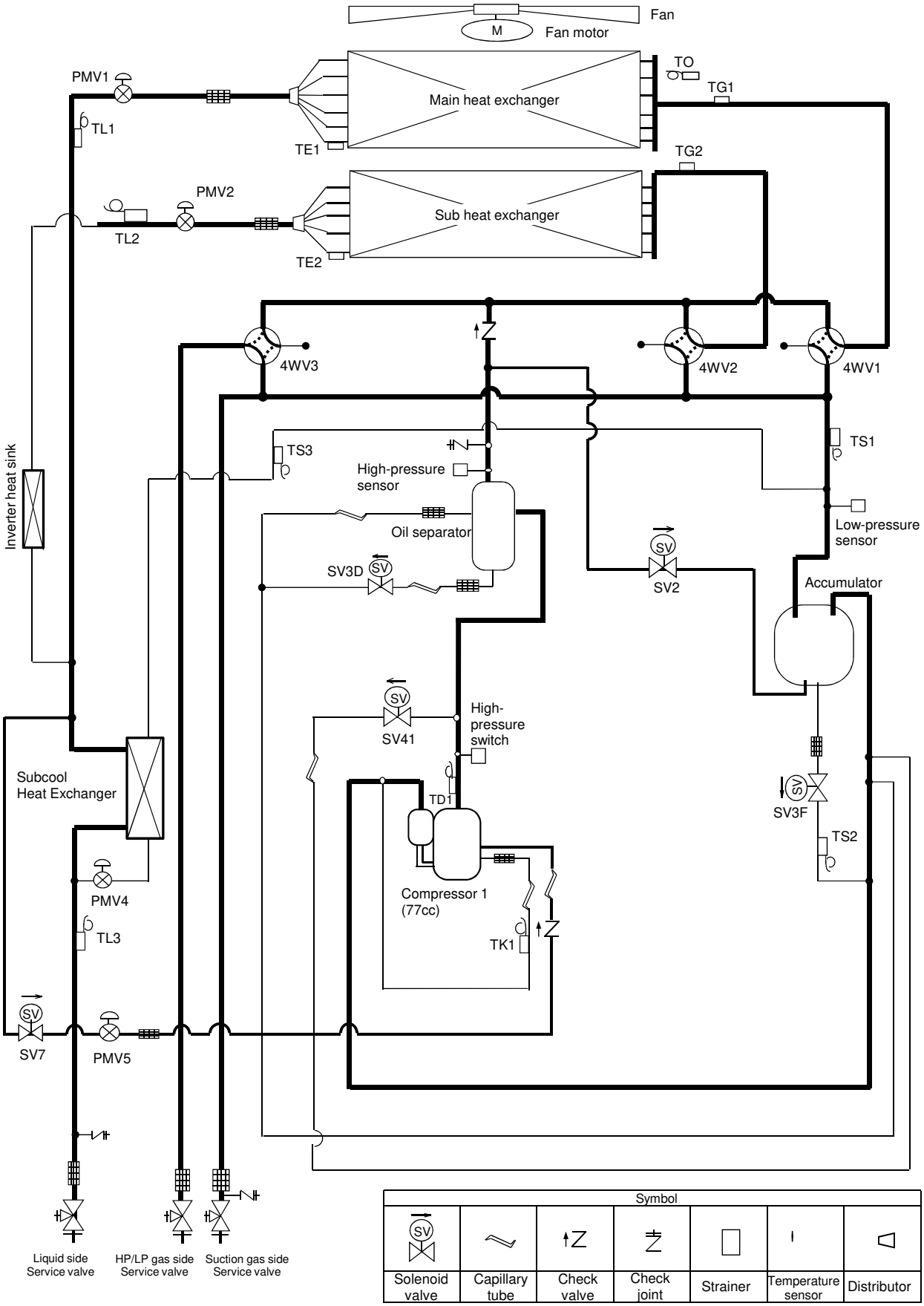


3. REFRIGERANT PIPING SCHEMATIC DRAWING

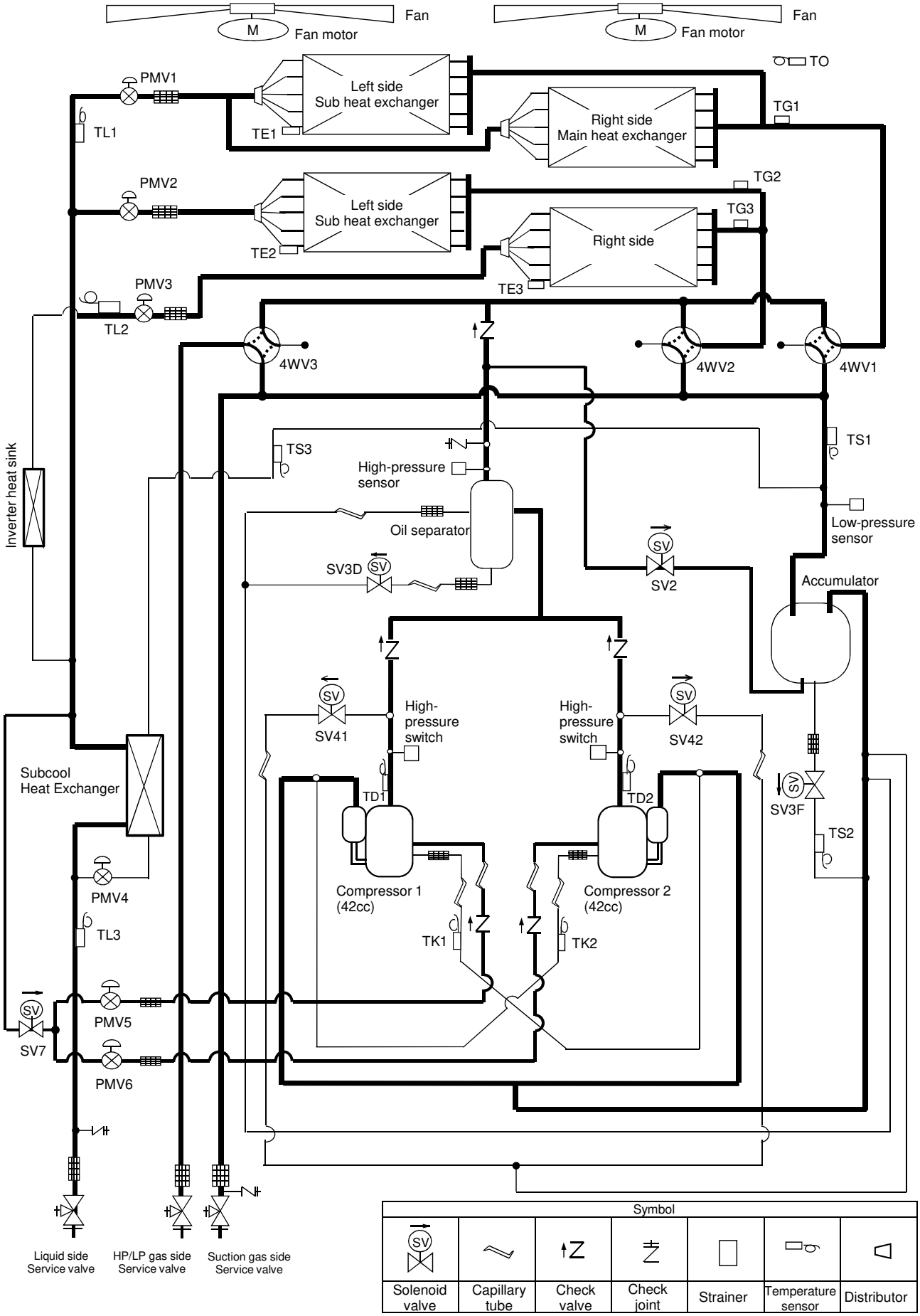
Outdoor unit

8, 10, 12, 14HP

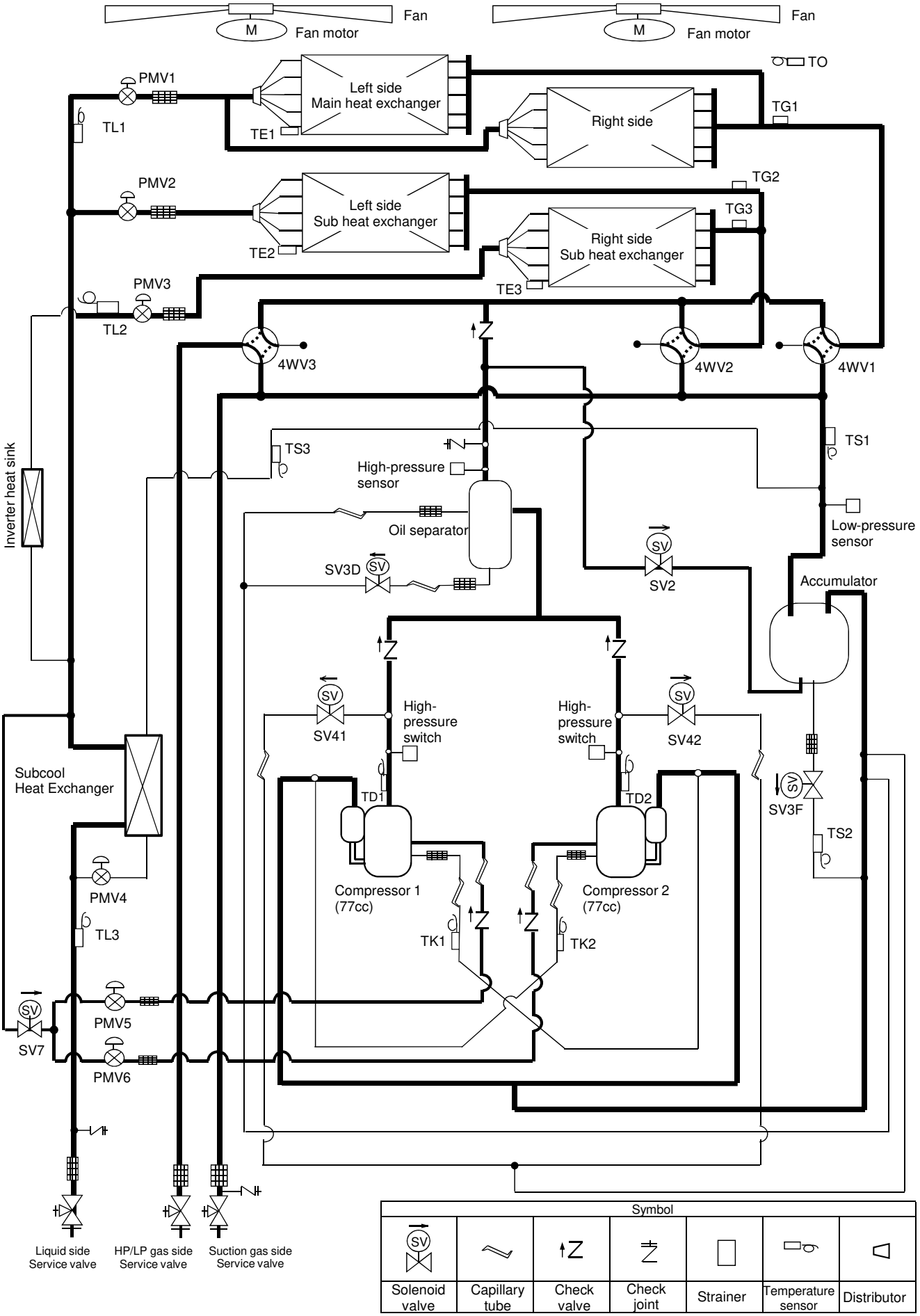
Model: MMY-SUG0801*, SUG1001*, SUG1201*, SUG1401*



16, 18HP
Model: MMY-SUG1601*, SUG1801*



20, 22, 24HP
Model: MMY-SUG2001*, SUG2201*, SUG2401*



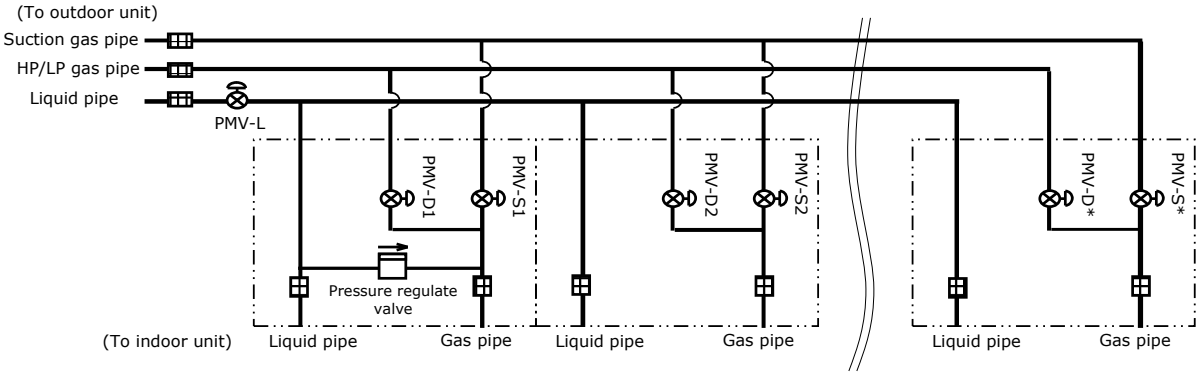
Functional Part Name

2-Way valve	SV3D	(Connector CN324 : WHI) 1) Reserves oil in the oil separator during OFF time. 2) Returns oil reserved in the oil separator to the compressor during ON time.
	SV3F	(Connector CN324: WHI) 1) Supplies oil in the accumulator to the compressor 2) Shuts off the liquid refrigerant from the accumulator when the compressor dilution
	SV41 SV42	(SV41 • • • Connector CN324 : WHI , SV42 • • • Connector CN327 : BLK) 1) High/Low pressure balance Prevention of subcool oil backflow when compressor stop, start-up compensation when starting up the compressor, reducing refrigerant noise when starting up heating operation 2) High pressure release function 3) Low pressure release function 4) Keeps the compressor reliability when Hot Gas Bypass system (prevent dilution with oil) 5) Releases capacity (Refrigerant mass bypass function in minimum cooling operation)
	SV2	(Connector CN326 : BRW) 1)Stir the liquid refrigerant in the accumulator
	SV7	(Connector CN325 : YEL) 1)Supplies Liquid refrigerant to the injection circuit
4-Way valve	4WV1 4WV2	(4WV1 • • • Connector CN317 : ORN , 4WV2 • • • Connector CN318 : PUR) 1)Cooling/Heating change 2)Reverse Defrost
	4WV3	(Connector CN320 : GRN) 1) Cooling/Heating change 2) Reverse Defrost
Pulse Motor Valve	PMV1	(Connector CN300 : WHI) 1) Controls superheat and subcool of the main heat exchanger 2) Stored liquid refrigerant reduction control in low ambient cooling operation (recovers stored liquid refrigerant in the main heat exchanger)
	PMV2 PMV3	(PMV2 • • • Connector CN301 : WHI , PMV3 • • • Connector CN302 : BLU) 1) Controls superheat and subcool of the sub heat exchanger 2) Maintains discharge pressure in low ambient cooling operation
	PMV4	(Connector CN303 : RED) 1) Controls superheat and subcool of the sub-cooling heat exchanger 2) Liquid bypass function for discharge temperature releases (cooling bypass function)
	PMV5 PMV6	(PMV5• • • Connector CN345 : YEL , PMV6 • • • Connector CN346 : BLK) 1)Adjusting the amount of liquid refrigerant supplied to the injection circuit
Oil Separator		1) Prevention for rapid decreasing oil (Decreases oil flowing to the cycle) 2) Reserve function of excess oil
Accumulator		1)Accumulate liquid refrigerant and Prevention of liquid refrigerant back to the compressor
Plate Heat exchanger		1)Maintaining subcool of the piping
Temperature Sensor	TD1 TD2	(TD1 • • • Connector CN502 : WHI , TD2 • • • Connector CN380 : BLK) 1) Protection of compressor discharge temperature 2) Used for discharge temperature release
	TG1 TG2 TG3	(TG1 • • • Connector CN381 : WHI , TG2 • • • Connector CN381 : WHI , TG3 • • • Connector CN384 : BLU) 1) Controls superheat of PMV in heating operation
	TE1	(Connector CN381 : WHI) 1) Controls the main heat exchanger defrost in heating operation 2) Controls outdoor fan in heating operation
	TE2 TE3	(TE2 • • • Connector CN381 : WHI , TE3 • • • Connector CN384 : BLU) 1) Controls the main heat exchanger defrost in heating operation 2) Controls outdoor fan in heating operation
	TL1	(Connector CN378 : WHI) 1) Detects the main heat exchanger subcool in cooling operation 2) Use as main complement switching during cooling operation
	TL2	(Connector CN378 : WHI) 1) Detects subcool of the sub-cooling heat exchanger in cooling operation 2) Use as main complement switching in cooling operation [3 way variable heat exchanger]
	TL3	(Connector CN378 : WHI) 1) Controls subcool of the sub-cooling heat exchanger
	TS1	(Connector CN378 : WHI) 1) Controls PMV superheat in heating operation
	TS2	1)Controls SV3F ON/OFF
	TS3	(Connector CN378 : WHI) 1) Controls subcool of the sub-cooling heat exchanger
	TO	(Connector CN507 : YEL) 1) Detects outside temperature
	TK1 TK2	(TK1 • • • Connector CN502 : WHI , TK2 • • • Connector CN380 : BLK) 1) Judges oil level of the compressor
Pressure Sensor	High pressure sensor	(Connector CN501 : RED) 1) Detects high pressure 2) Controls the fan in low ambient cooling operation 3) Detects subcool of indoor units in heating operation
	Low pressure sensor	(Connector CN500 : WHI) 1) Detects low pressure 2) Controls superheat in heating operation
Heater	Compressor case heater	(Comp1 • • • Connector CN331 : WHI , Comp2 • • • Connector CN332 : BLU) 1) Prevents liquid refrigerant accumulation in the compressor

REFRIGERANT PIPING SCHEMATIC DRAWING

Flow Selector unit (Multi-port)

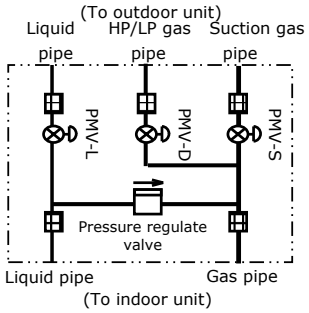
RBM-Y1801FU4PE / RBM-Y1801FU8PE / RBM-Y1801FU12PE



*) FU4PE : 4
FU8PE : 8
FU012PE : 12

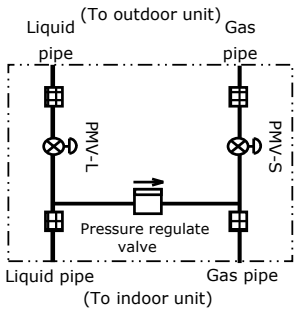
Flow Selector unit (Single-port)

RBM-Y1121FUPE / RBM-Y1801FUPE / RBM-Y2801FUPE

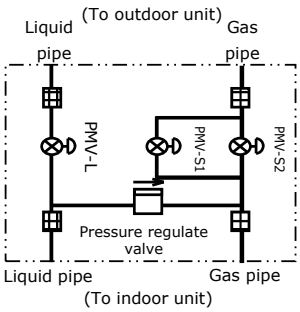


Shut-off valve unit

RBM-SV1121HUPE / RBM-SV1801HUPE



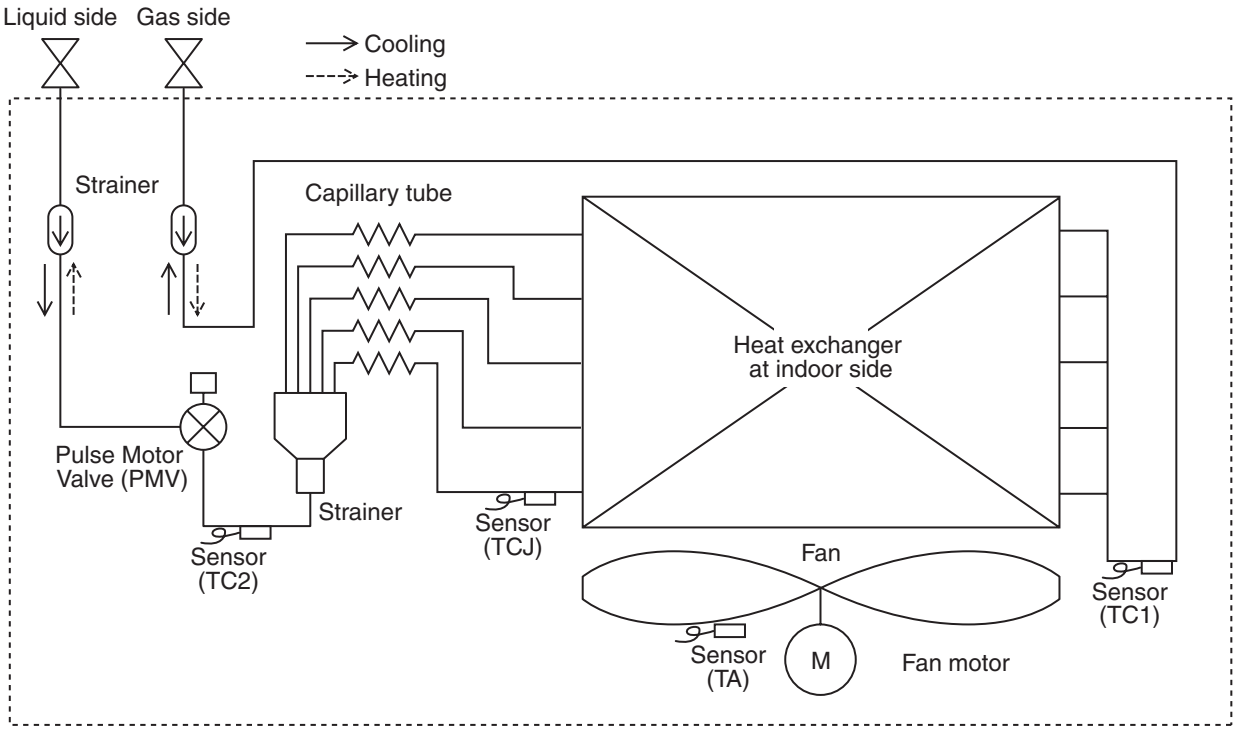
RBM-SV6701HUPE



Flow Selector unit, Shut-off valve unit Function Part Explanation

Function Parts name		Function outline
Pulse motor valve	PMV-D	1) Change refrigerant flow for Cooling / Heating cycle 2) Stop refrigerant flow in pump-down and shut-off operation when refrigerant leakage is detected.
	PMV-S	
	PMV-L	1) Stop refrigerant flow in pump-down and shut-off operation when refrigerant leakage is detected.
Pressure regulate valve		This valve will open if the refrigerant pressure inside the pipe between PMV-L and indoor unit PMV will increase abnormally by gasification during safety shut-off operation.

Indoor unit



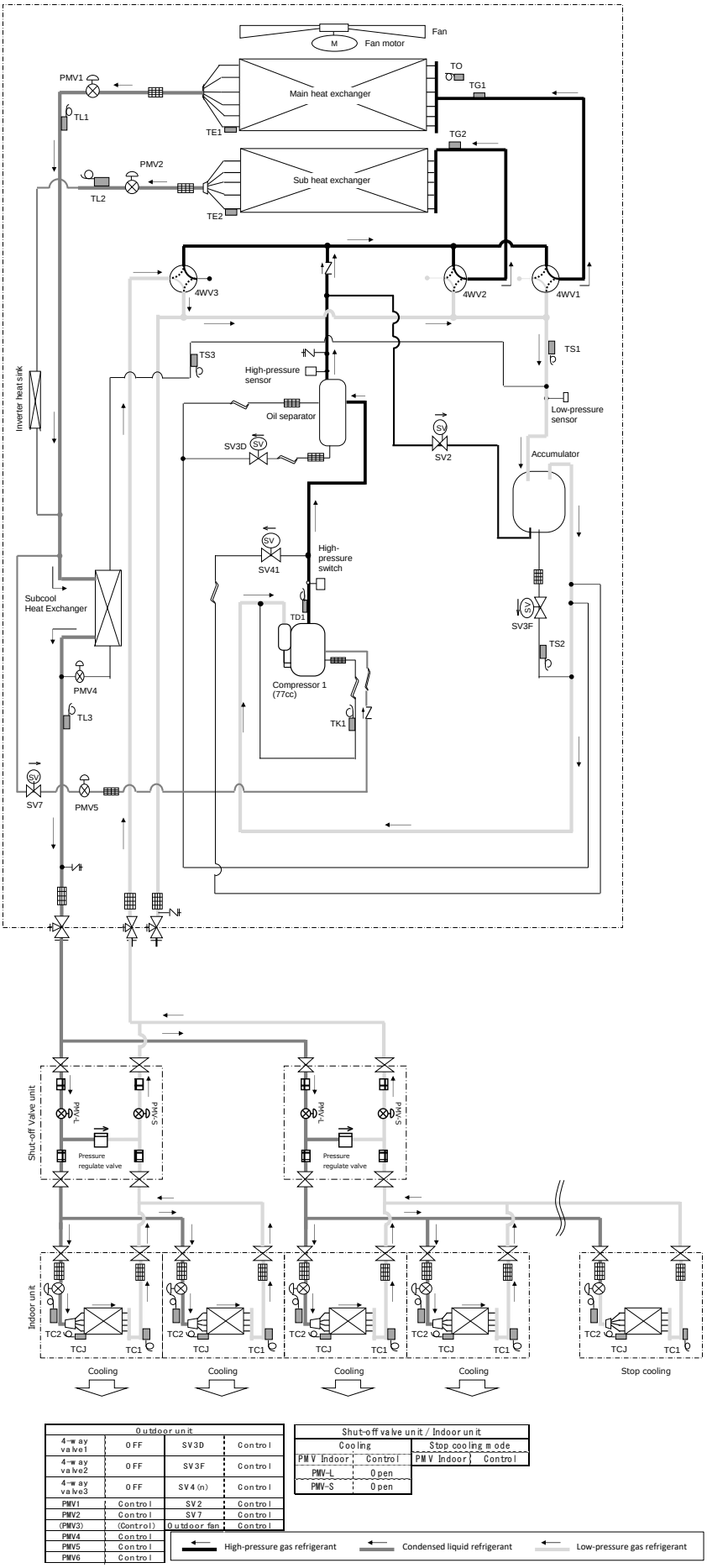
U series Indoor Unit Functional Part Explanation

Functional part name		Functional outline
Pulse Motor Valve	PMV	(Connector CN082 (6P): Blue) 1) Controls superheat in cooling operation 2) Controls subcool in heating operation 3) Recovers refrigerant oil in cooling operation 4) Recovers refrigerant oil in heating operation
Temp. Sensor	1.TA	(Connector CN104 (2P): Yellow) 1) Detects indoor return air temperature
	2.TC1	(Connector CN100 (3P): Brown) 1) Controls PMV superheat in cooling operation
	3.TC2	(Connector CN101 (2P): Black) 1) Controls PMV subcool in heating operation
	4.TCJ	(Connector CN102 (2P): Red) 1) Controls PMV superheat in cooling operation

* Please refer to each indoor unit Service Manual for details of each sensor

4. COMBINED REFRIGERANT PIPING SYSTEM SCHEMATIC DIAGRAMS

4-1. Cooling mode (Heat pump)
Outdoor unit (MMY-SUG1201MT8(J)P-E)



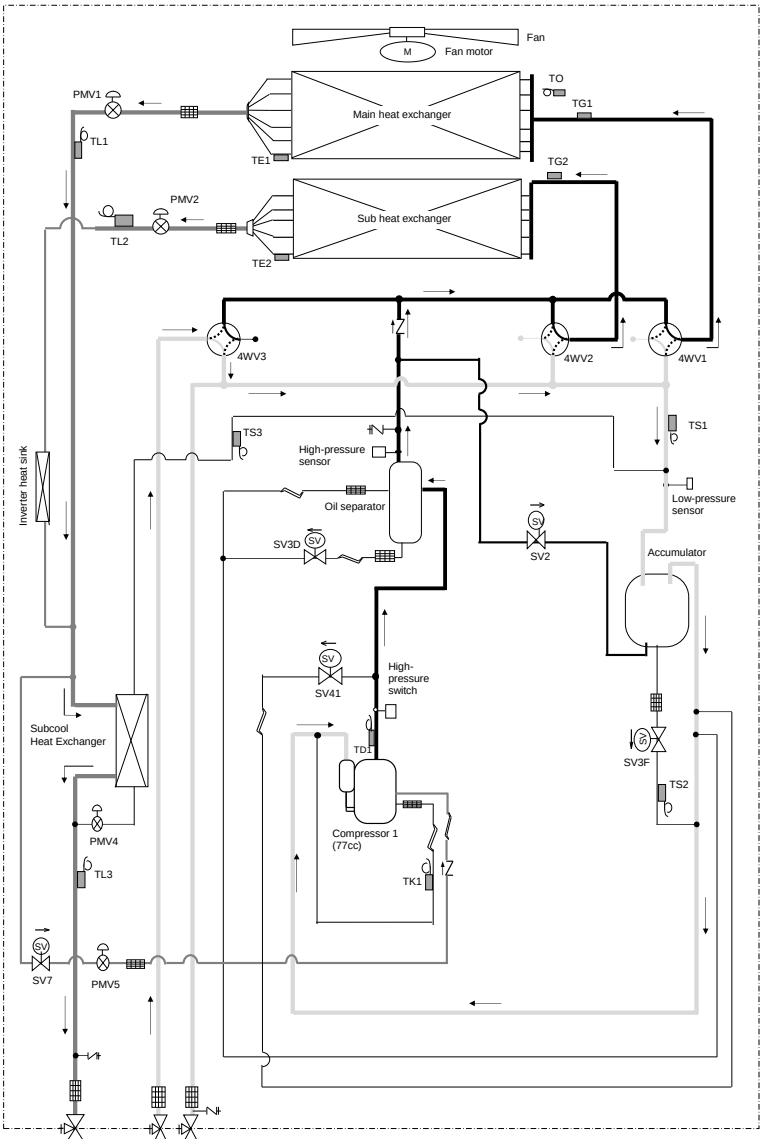
Outdoor unit			
4-way valve1	OFF	SV3D	Control
4-way valve2	OFF	SV3F	Control
4-way valve3	OFF	SV4(n)	Control
PMV1	Control	SV2	Control
PMV2	Control	SV7	Control
(PMV3)	(Control)	Outdoor fan	Control
PMV4	Control		
PMV5	Control		
PMV6	Control		

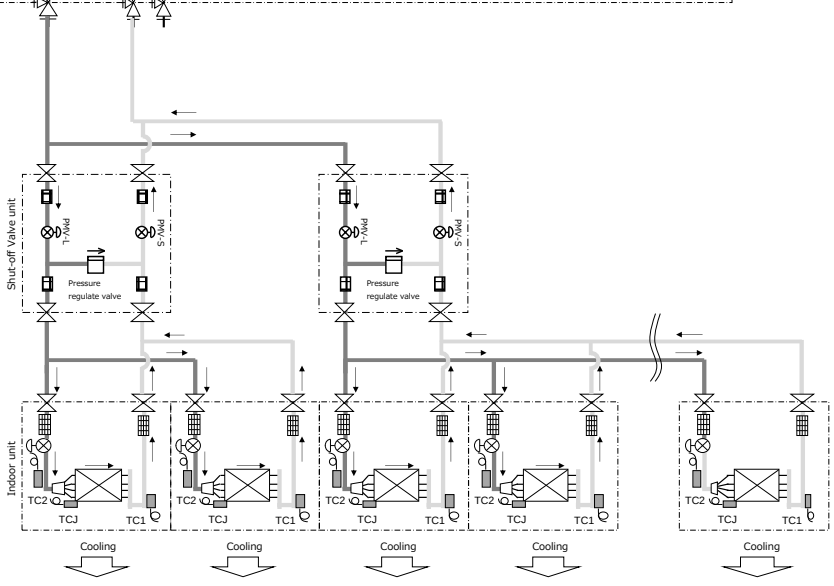
Shut-off valve unit / Indoor unit			
Cooling		Stop cooling mode	
PMV Indoor	Control	PMV Indoor	Control
PMV-L	Open		
PMV-S	Open		

High-pressure gas refrigerant　Condensed liquid refrigerant　Low-pressure gas refrigerant

4-2. Defrost mode (Heat pump)

Outdoor unit (MMY-SUG1201MT8(J)P-E)



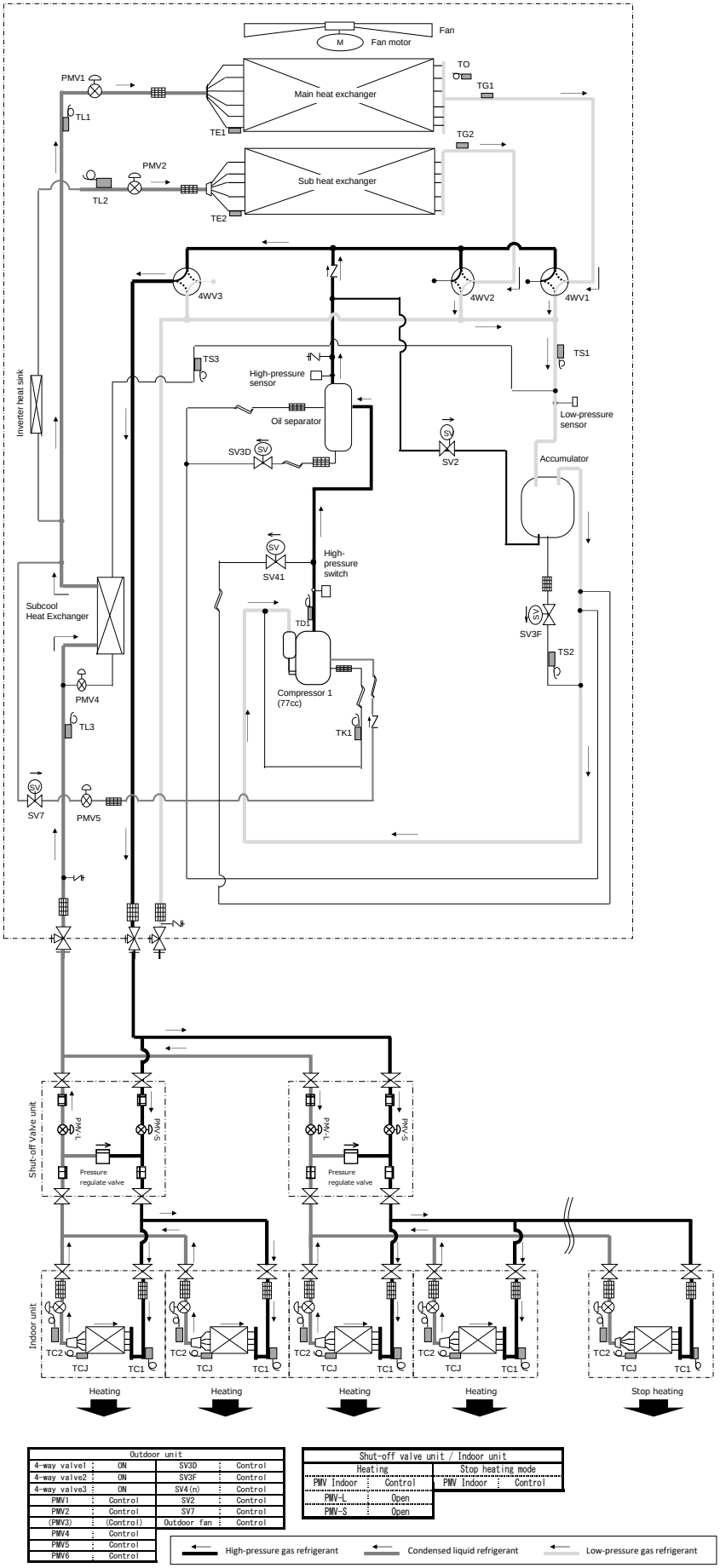


Outdoor unit			
4-way valve1	OFF	SV3D	Control
4-way valve2	OFF	SV3F	Control
4-way valve3	OFF	SV4(n)	Control
PMV1	Control	SV2	Control
PMV2	Control	SV7	Control
(PMV3)	(Control)	Outdoor fan	OFF
PMV4	Control		
PMV5	Control		
PMV6	Control		

Shut-off valve unit / Indoor unit	
Cooling	
PMV Indoor	Control
PMV-L	Open
PMV-S	Open

High-pressure gas refrigerant Condensed liquid refrigerant Low-pressure gas refrigerant

4-3. Heating mode (Heat pump)
Outdoor unit (MMY-SUG1201MT8(J)P-E)

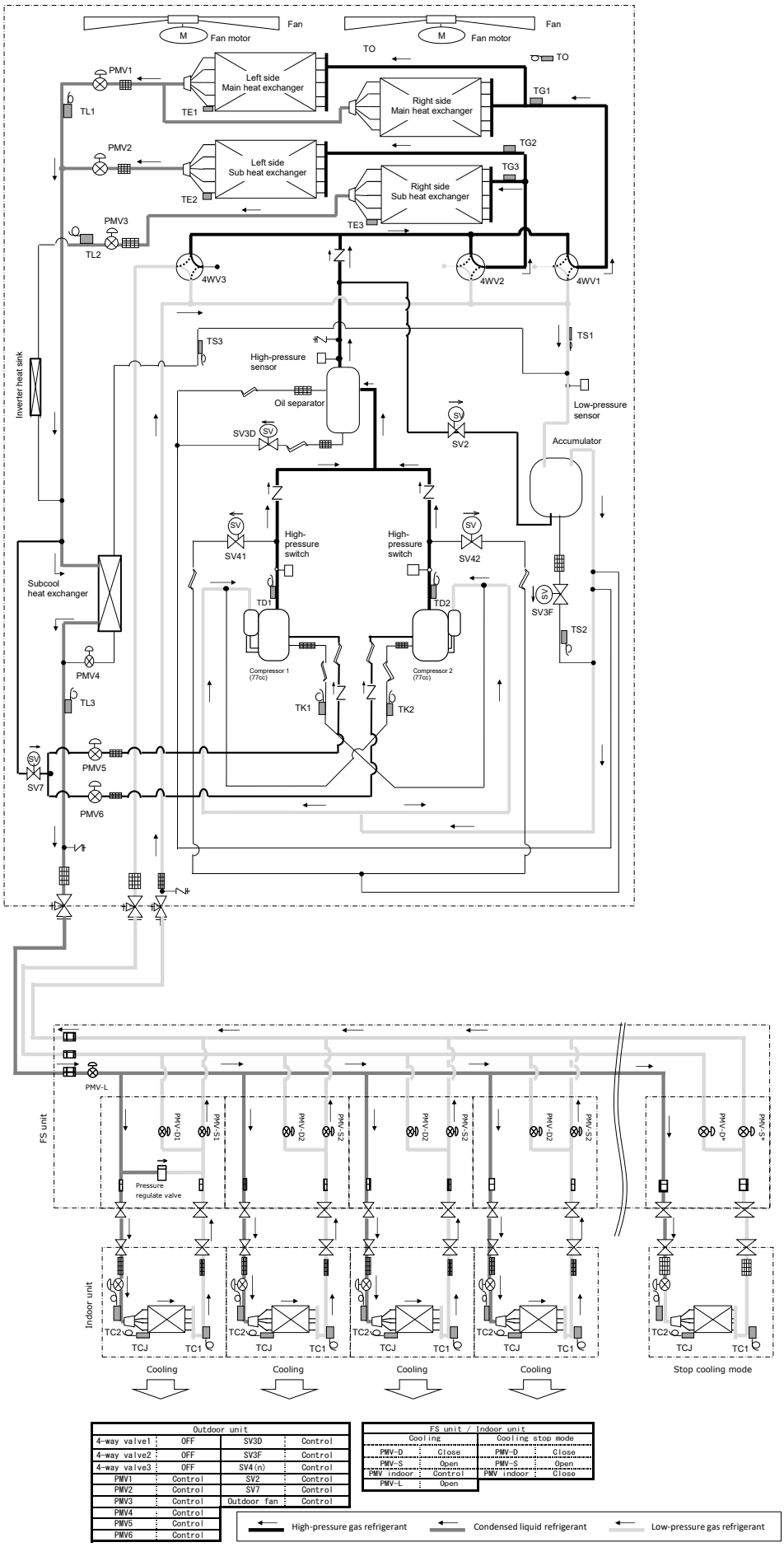


Outdoor unit			
4-way valve1	ON	SV3D	Control
4-way valve2	ON	SV3F	Control
4-way valve3	ON	SV4(n)	Control
PMV1	Control	SV2	Control
PMV2	Control	SV7	Control
(PMV3)	(Control)	Outdoor fan	Control
PMV4	Control		
PMV5	Control		
PMV6	Control		

Shut-off valve unit / Indoor unit			
Heating		Stop heating mode	
PMV Indoor	Control	PMV Indoor	Control
PMV-L	Open		
PMV-S	Open		

High-pressure gas refrigerant Condensed liquid refrigerant Low-pressure gas refrigerant

4-4. Cooling mode (Heat recovery)
Outdoor unit (MMY-SUG2401MT8(J)P-E)

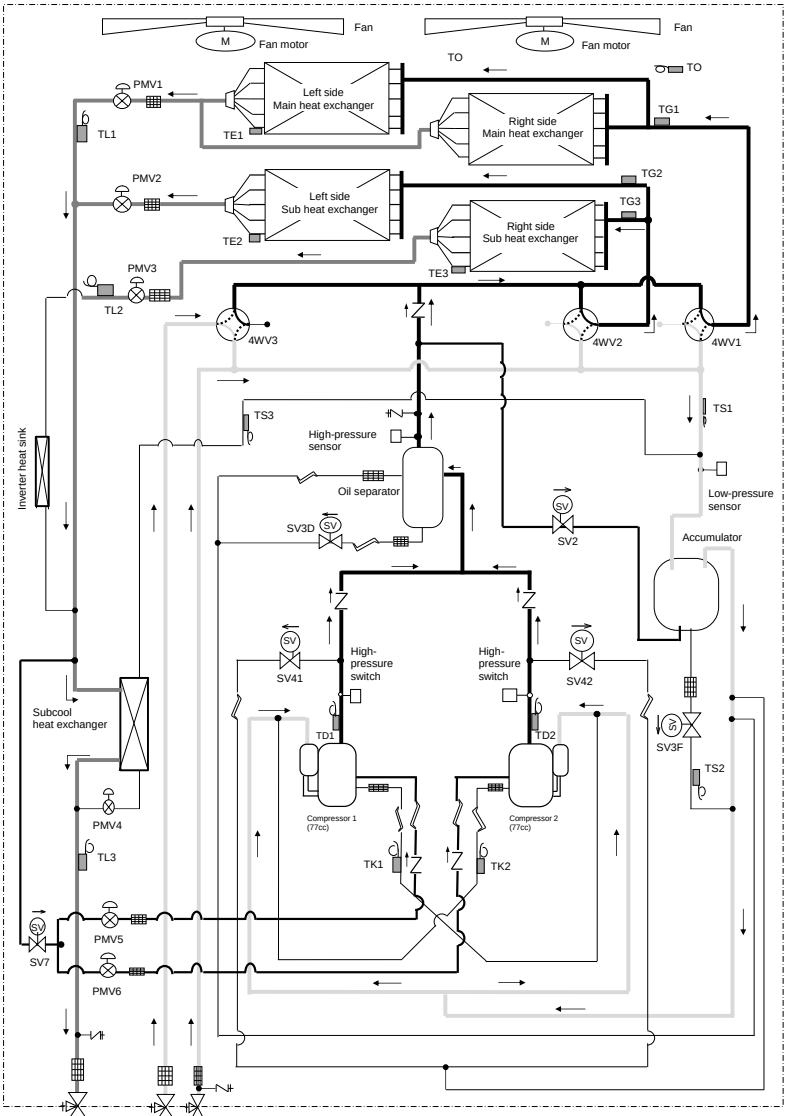


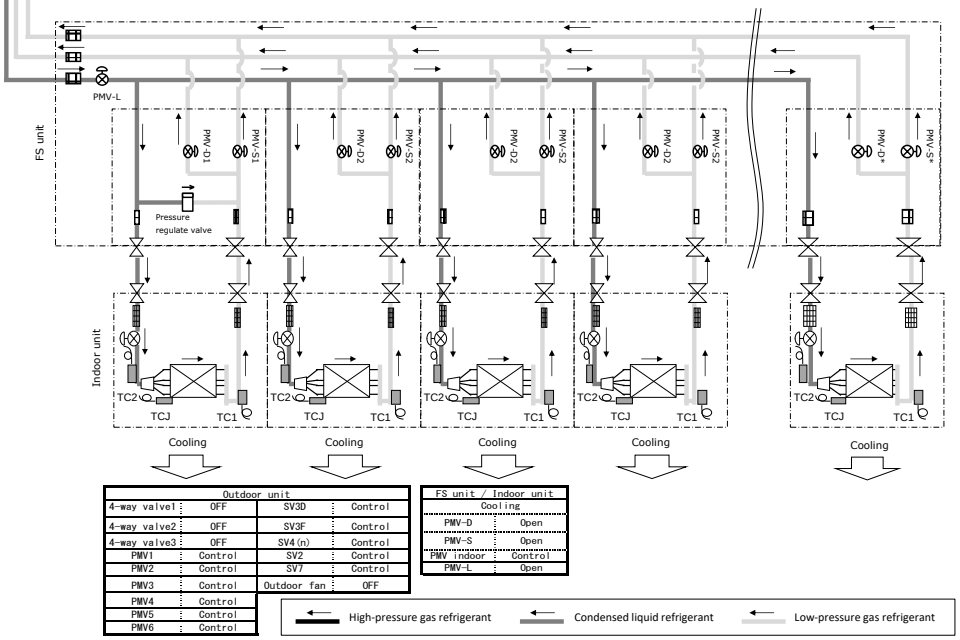
Outdoor unit			
4-way valve1	OFF	SV3D	Control
4-way valve2	OFF	SV3F	Control
4-way valve3	OFF	SV4(n)	Control
PMV1	Control	SV2	Control
PMV2	Control	SV7	Control
PMV3	Control	Outdoor fan	Control
PMV4	Control		
PMV5	Control		
PMV6	Control		

FS unit / Indoor unit			
Cooling		Cooling stop mode	
PMV-D	Close	PMV-D	Close
PMV-S	Open	PMV-S	Open
PMV indoor	Control	PMV indoor	Close
PMV-L	Open		

High-pressure gas refrigerant Condensed liquid refrigerant Low-pressure gas refrigerant

4-5. Defrost mode (Heat recovery)
Outdoor unit (MMY-SUG2401MT8(J)P-E)





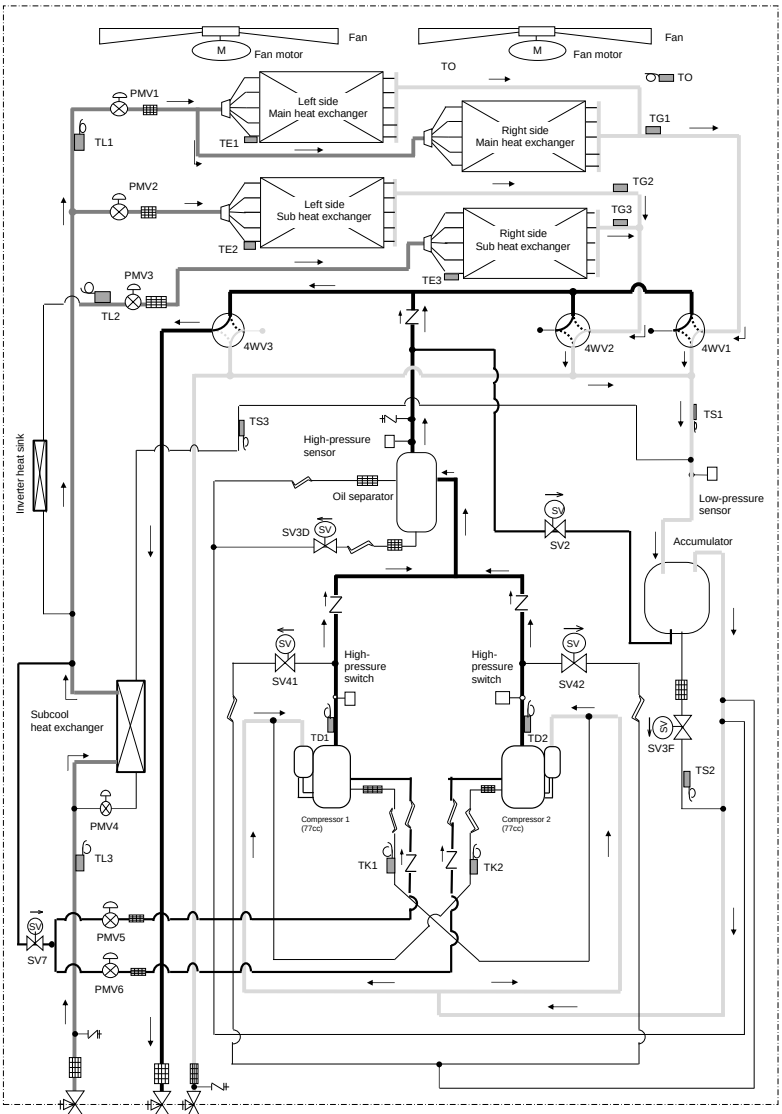
Outdoor unit			
4-way valve1	OFF	SV3D	Control
4-way valve2	OFF	SV3F	Control
4-way valve3	OFF	SV4(n)	Control
PMV1	Control	SV2	Control
PMV2	Control	SV7	Control
PMV3	Control	Outdoor fan	OFF
PMV4	Control		
PMV5	Control		
PMV6	Control		

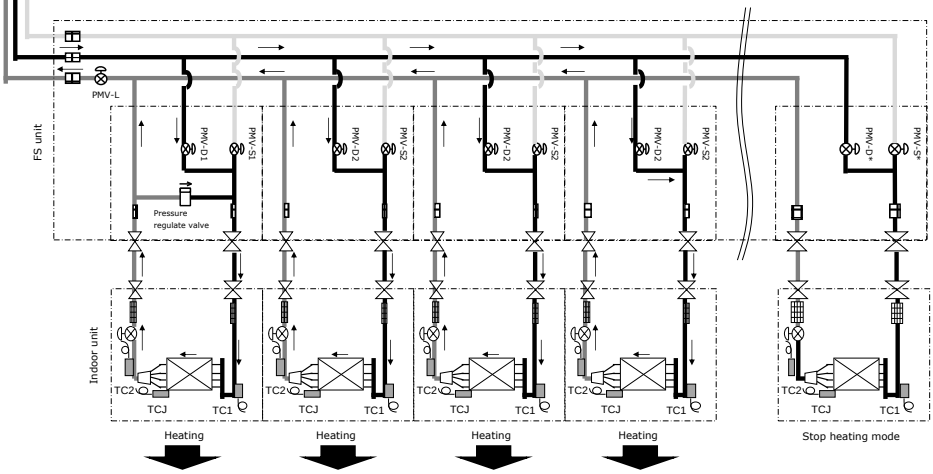
FS unit / Indoor unit	
Cooling	
PMV-D	Open
PMV-S	Open
PMV indoor	Control
PMV-L	Open

High-pressure gas refrigerant　Condensed liquid refrigerant　Low-pressure gas refrigerant

4-6. Heating mode (Heat recovery)

Outdoor unit (MMY-SUG2401MT8(J)P-E)



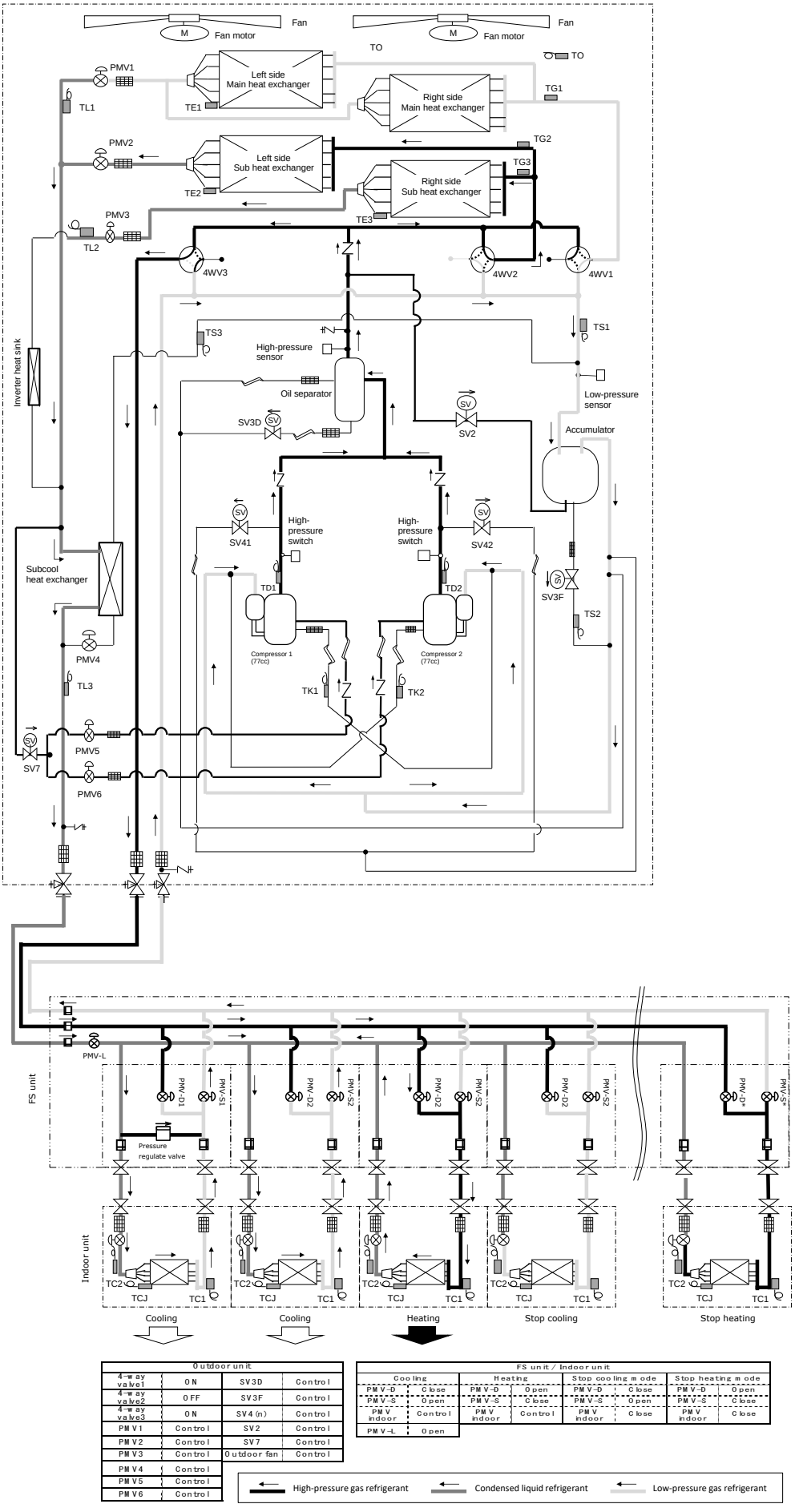


Outdoor unit			
4-way valve1	ON	SV3D	Control
4-way valve2	ON	SV3F	Control
4-way valve3	ON	SV4(n)	Control
PMV1	Control	SV2	Control
PMV2	Control	SV7	Control
PMV3	Control	Outdoor fan	Control
PMV4	Control		
PMV5	Control		
PMV6	Control		

FS unit / Indoor unit			
Heating		Stop heating mode	
PMV-D	Open	PMV-D	Open
PMV-S	Close	PMV-S	Close
PMV indoor	Control	PMV indoor	Close
PMV-L	Open		

High-pressure gas refrigerant Condensed liquid refrigerant Low-pressure gas refrigerant

4-7. Simultaneous cooling mode (Heat recovery)
Outdoor unit (MMY-SUG2401MT8(J)P-E)

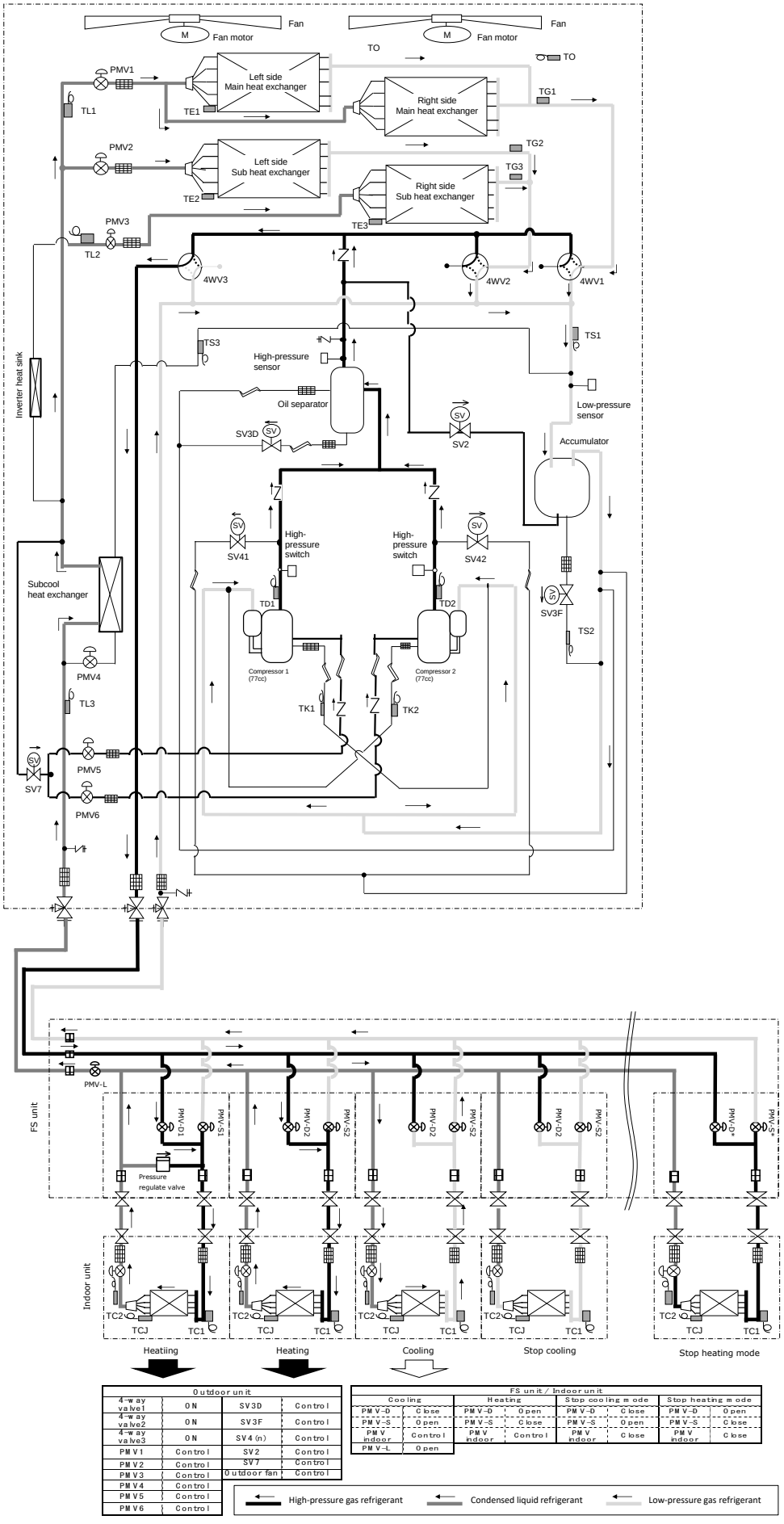


Outdoor unit			
4-way valve1	ON	SV3D	Control
4-way valve2	OFF	SV3F	Control
4-way valve3	ON	SV4 (n)	Control
PMV1	Control	SV2	Control
PMV2	Control	SV7	Control
PMV3	Control	Outdoor fan	Control
PMV4	Control		
PMV5	Control		
PMV6	Control		

FS unit / Indoor unit							
Cooling		Heating		Stop cooling mode		Stop heating mode	
PMV-D	Close	PMV-D	Open	PMV-D	Close	PMV-D	Open
PMV-S	Open	PMV-S	Close	PMV-S	Open	PMV-S	Close
PMV indoor	Control	PMV indoor	Control	PMV indoor	Close	PMV indoor	Close
PMV-L	Open						

High-pressure gas refrigerant Condensed liquid refrigerant Low-pressure gas refrigerant

4-8. Simultaneous heating mode (Heat recovery)
Outdoor unit (MMY-SUG2401MT8(J)P-E)



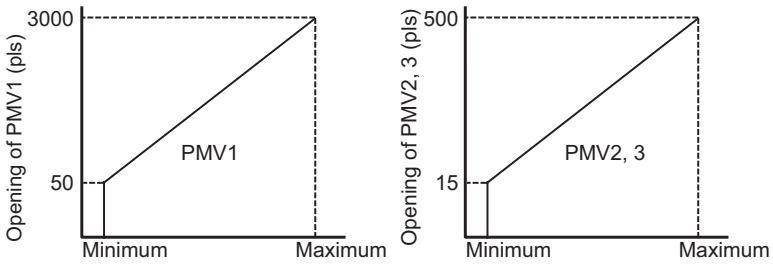
Outdoor unit			
4-way valve1	ON	SV3D	Control
4-way valve2	ON	SV3F	Control
4-way valve3	ON	SV4 (n)	Control
PMV1	Control	SV2	Control
PMV2	Control	SV7	Control
PMV3	Control	Outdoor fan	Control
PMV4	Control		
PMV5	Control		
PMV6	Control		

FS unit / Indoor unit							
Cooling		Heating		Stop cooling mode		Stop heating mode	
PMV-D	Close	PMV-D	Open	PMV-D	Close	PMV-D	Open
PMV-S	Open	PMV-S	Close	PMV-S	Open	PMV-S	Close
PMV indoor	Control	PMV indoor	Control	PMV indoor	Close	PMV indoor	Close
PMV-L	Open						

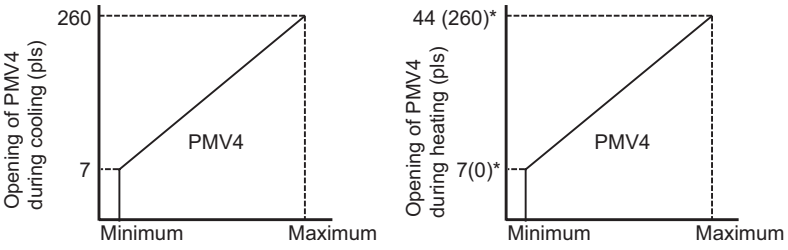
5. CONTROL OUTLINE

5-1. Outdoor Unit

Item	Description of operation, numerical data, and other information	Remarks
1. Pulse motor valve (PMV) control	[1] PMV1, 2, 3 control (PMV 1 and 2, 3) 1) During air conditioner operation, the pulse count of a PMV1 (pulse motor valve 1) is controlled between 50 pls and 3000 pls, During air conditioner operation, the pulse count of a PMV2, 3 is controlled between 15 pls and 500 pls. 2) During cooling, the PMV opening is controlled on the basis of measurements provided by the TL temperature sensor and the Pd sensor (subcool control). 3) During heating, the PMV opening is controlled on the basis of measurements provided by the TS, TD and TG temperature sensor and the Ps sensor (superheat control). 4) PMVs are fully closed when the air conditioner is in thermostat OFF state or upon being tuned off normally or shut down due to an abnormality.	

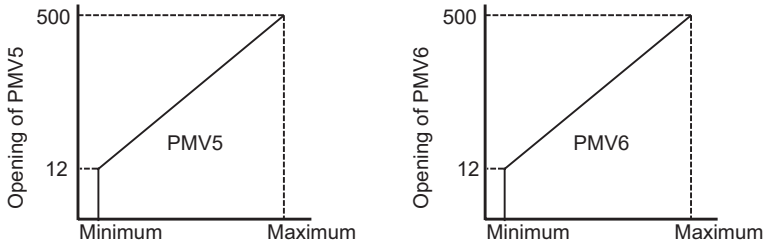


[2] PMV 4 control
1) During cooling, the pulse count of a PMV 4 (pulse motor valve 4) is controlled between 7 pls and 260 pls. The PMV 4 opening is controlled on the basis of measurements provided by the TL3 temperature sensor and Pd sensor (subcool control). or TS3 temperature sensor and Ps sensor (superheat control).
2) During heating, the pulse count of a PMV4 is controlled between 7 pls and 44 pls or 0 pls and 260 pls. The PMV 4 operation is controlled by the pulse count of PMV opening of indoor unit and zone judgment. (Indoor refrigerant excess control) or controlled on the basis of measurements provided by the TS3 temperature sensor and Ps sensor. (superheat control).
3) PMVs are fully closed when the air conditioner is in thermostat OFF state, upon being turned off normally or shut down due to an abnormality.

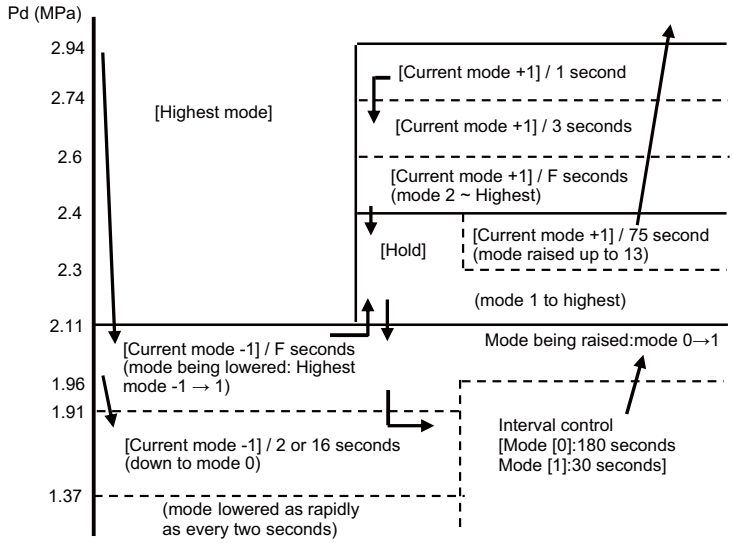


* Values in ( ) are during indoor refrigerant excess control

[3] PMV 5,6 control
1) During cooling or heating, the pulse count of a PMV 5 (pulse motor valve5) is controlled between 12 pls and 500 pls. The PMV 5 opening is controlled on the basis of measurements provided by the TD1 sensor (compressor1)
2) During cooling or heating, the pulse count of a PMV6 (pulse motor valve 6) is controlled between 12 pls and 500 pls. The PMV 6 opening is controlled on the basis of measurements provided by the TD2 sensor (compressor2)
3) PMV5,6 opening is controlled on the basis of measurements provided by the TD temperature sensor.
4) PMVs are fully closed when the air conditioner is in thermostat OFF state, upon being turned off normally or shut down due to an abnormality.



Item	Description of operation, numerical data, and other information	Remarks
2. Outdoor fan control	[1] Cooling fan control 1) Outdoor fan speed (mode) is controlled on the basis of measurements provided by the Pd sensor.	• In the simultaneous cooling mode, it is controlled by the target condensation temperature determined by the indoor required capacity.



* Available control modes are 0 (at rest) to 63.

[2] Heating fan control

1) Outdoor fan speed (mode) is controlled on the basis of the measurements provided by the TE temperature sensor.
2) If TE > 25 ºC is continuously detected for 8 minutes, the fan maybe turned off. However, this condition is the same as normal thermostat OFF, so that fan operation will be restarted.
3) For a specified period after air conditioner start up and during defrosting this control is disabled.
4) When refrigerant is extremely short supply, this control may cause the air conditioner to be repeatedly turned on and off.

• TE sensor temperature is the lowest temperature by comparing TE 1, 2, 3

TE1 temperature (°C)	
	Zone A: Lowest mode, timer count for forced compressor shutdown
25	Zone B: -2/30 seconds (down to lowest mode)
8	Zone C: -1/30 seconds (down to lowest mode)
6	Zone D: Hold (staying at current mode)
4	Zone E: +1/30 seconds (up to highest mode)
2	Zone F: Highest mode

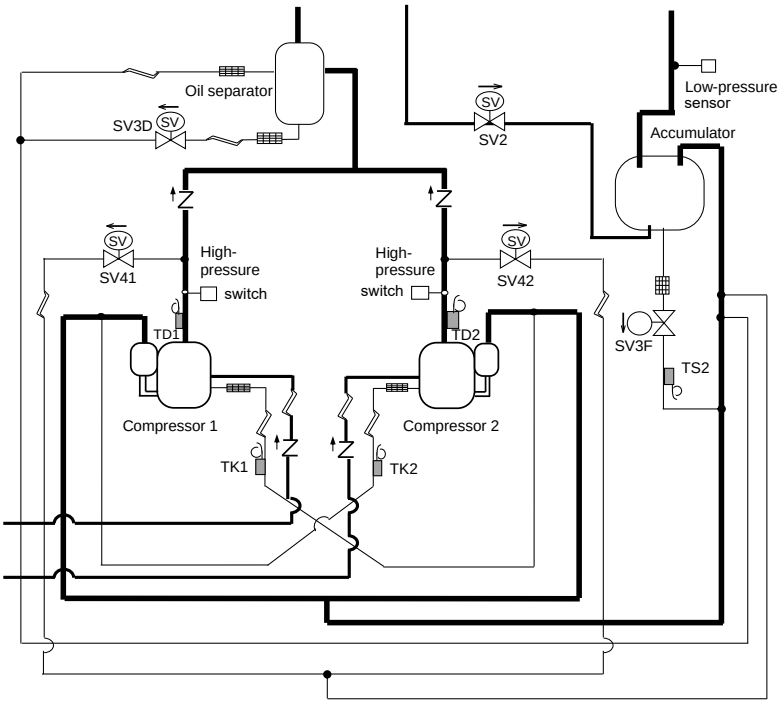
Zone A: Lowest mode, timer count for forced compressor shutdown
Zone B: -2/30 seconds (down to lowest mode)
Zone C: -1/30 seconds (down to lowest mode)
Zone D: Hold (staying at current mode)
Zone E: +1/30 seconds (up to highest mode)
Zone F: Highest mode
TE1 temperature (°C)

[3] Upper limit shift correction control in outdoor fan mode while operating in heating mode . . . This is a control that lowers the upper limit of the outdoor fan speed during operation when the air conditioning load is low and the number of indoor units operating is small.

• Mode down is valid only when TH(x) temperature < 75°C

1) Lowers the current fan mode upper limit by -1 mode
2) After that, while the conditions are met, the mode will be down every 30 seconds.
3) The lower limit of the mode down is the fan mode "54".
4) When the comp is turned off, this control is canceled and it returns to the initial setting upper limit mode.
5) When the number of indoor driving increases, one mode will be up every 30 seconds.

• Mode up is valid only when TH(x) temperature ≥ 80°C

Item	Description of operation, numerical data, and other information	Remarks
3. Capacity control	1) The compressors are controlled on the basis of capacity demand issued by indoor controllers. 2) The two compressors featured in an outdoor unit operate on a rotational basis, so that, every time they come to stop, their order of startup changes.	• The outdoor rotation control may be performed even when the insufficient refrigerant state is not released even if the indoor refrigerant recovery control is performed.
4. Oil level detection control	1) TK1,2 sensor detection temperature and prediction TK1, 2 sensor temperature are used to judge whether there is an appropriate amount of oil in the compressor case. 2) Based on the relationship between the TK detection temperature and the predicted TK sensor temperature, it is judged whether the oil level in the compressor case is appropriate, and if it is insufficient, the upper limit of the compressor speed and SV3D valve operate. 3) If the shortage is not resolves by the operation of 2), shift to the oil recovery operation. 4) This control function is performed whenever at least one compressor is in operation. 	• The predicted TK sensor temperature is the predicted value of the TK sensor temperature when the oil is in proper condition • SV3D valve: Solenoid valve for oil return of oil separator • Oil level judgment ① guide When predicted TK-TK < 10°C, the oil level is appropriate ② When predicted TK-TK ≥ 10°C, the oil level is insufficient • Predicted TK1, 2 and TK1, and 2 sensor temperature It can check by "8-6. 7-Segment Display Function".

Item	Description of operation, numerical data, and other information	Remarks
5. Oil recovery control	This is a control for preventing oil shortage and oil equalization control is performed as follows during cooling operation and heating operation. [1] During cooling operation When the oil level of any compressor in the outdoor unit is determined to be insufficient due to the stagnation of refrigerating machine oil in the gas pipes and the indoor unit during cooling operation, this control recovers the oil from the indoor unit. 1) Control start condition • The operating time of the compressor in which an insufficient oil level is detected exceeds 15 minutes • The operating time of the compressor in which an insufficient oil level is detected exceeds 30 minutes • The operating time of the compressor in which an insufficient oil level is detected exceeds 45 minutes • When the operating time of the compressor in which an insufficient oil level is detected exceeds 60 minutes, it causes an abnormal stop of the compressor. 2) Control content • The operating compressor is operated at the target speed, the stopped compressor is started, and the compressor is operated at the target speed. • Switch control mode in the indoor unit to the cooling oil (refrigerant) recovery control mode, and open the PMV opening of the indoor unit by a certain opening. • After the recovery control is performed for a predetermined time, the recovery control ends and the normal cooling operation is resumed. [2] During heating operation This control can recover the stagnated oil in the piping or indoor heat exchanger and return it to the compressor by defrosting operation when the oil level continues to decrease even if the compressor oil level has been detected and the oil return control from the oil separator has functioned. • Reverse defrost control is performed every 30 minutes after an insufficient oil level is confirmed during heating operation. • When the operating time of the compressor in which an insufficient oil level is detected exceeds 60 minutes, it causes an abnormal stop of the compressor.	• The shortage is confirmed when the shortage continues even if the recovery operation (SV3D valve is turned on) is performed. * Depending on the number of indoor units when an insufficient oil level is confirmed, this control determines whether to recover the oil from only the operating indoor units or all the indoor units. • Oil level confirmation timer operates when an insufficient oil level is detected.
6. Heating refrigerant (oil) recovery control	Since the indoor unit that is stopped during heating operation closes the PMV, liquid refrigerant may accumulate in the heat exchanger, resulting in a refrigerant shortage condition. This control is to recover the liquid refrigerant to return it to the outdoor unit when a refrigerant shortage is detected. The PMV of the stopped indoor unit is slightly opened to return the refrigerant to the outdoor unit, but if the insufficient refrigerant state is still not resolved, heating refrigerant recovery control is performed. This control also recovers the refrigerant in Indoor/Outdoor unit after defrosting and the oil in the outdoor heat exchanger during heating overload operation. [1] Paused heating indoor unit PMV minute opening control 1) Control start condition When all the following conditions are satisfied • There are units with heating thermostat ON and other than thermostat ON (stop/thermostat OFF). • When the outdoor unit determines the refrigerant shortage condition • When the outdoor PMV opening exceeds the specified opening or the TD sensor temperature exceeds the specified value 2) Control content When the control starts, the PMV in the indoor unit during stop opens by a minute opening. [2] Heating refrigerant recovery control 1) Control start condition • At the start of heating operation (when Comp. is turned on from Comp. OFF) • During heating operation transition after defrosting • 40 minutes have passed since the refrigerant shortage state was judged after starting the PMV minute opening control in the paused heating indoor unit.	• The recovery duration varies depending on the load condition, but it usually takes around 5-10 minutes. • The compressor's speed varies depending on the control conditions, indoor capacity, and outdoor unit.

Item	Description of operation, numerical data, and other information	Remarks
7. Defrosting control (Reverse defrosting method)	The reverse defrosting method is used for the outdoor unit in a single system [1] Defrosting start condition • During the heating operation, if the TE sensor detected temperature falls below the predicted TE sensor temperature by a specified amount, or if the TE sensor detected temperature falls below the frosting temperature for 300 minutes, the defrosting operation starts. (After start-up or when switching from cooling to heating, frost judgment is performed and the defrosting operation is started according to the judgment result.) [2] Defrost control content 1) Stop the compressor that is running. 2) After a certain period of time, the four-way valve is turned off and the outdoor fan is stopped. 3) Turn on the compressor that is off and operate it at the target speed for defrost control. [3] Defrost termination condition When the TE sensor temperature detection value exceeds a certain value (standard 12 °C) after a certain time has passed since the defrost control was started, the defrost end condition will be set and the defrost end control will be performed. Defrost end control content [4] Defrost end control content 1) Stop the compressor again. 2) Turns on the four-way valve after a certain period of time. 3) Control the refrigerant recovery in the heating room. For control details, see "6. Heating refrigerant (oil) recovery control".	• TE sensor detection temperature is the lowest temperature of TE1, TE2, TE3 • Frosting temperature is -1.5 ° C • After the power is turned on, for the first time, the defrosting operation is continued for 25 minutes below the frosting temperature only when the heat exchanger is frosted. • Fan mode may be controlled during defrosting for cycle protection. • The compressor speed during defrost control is controlled below 85.0rps.

Item	Description of operation, numerical data, and other information	Remarks
8. Release valve control	[1] SV4 and SV2 gas balance control This control turns on SV4 and SV2 when the compressor is stopped to balance the gas and reduce the starting load when the compressor is turned on next time. 1) Control condition • At power on • When the compressor is switched from ON to OFF during cooling operation or heating operation. 2) Control content • SV4 (x) is turned on when the power is turned on, and then turned off when ΔP (= Pd - Ps) becomes 2.0 or less. • SV4 (x) turns on when the compressor turns off. (Turns on when ΔP (Pd - Ps) is 3.0 or more, and turns off when ΔP (Pd - Ps) is 2.0 or less.) [2] SV4 high pressure release control This control is a control to suppress the high pressure rise during cooling operation and heating operation. 1) Control condition • Compressor ON 2) Control content • When Pd ≥ P1, SV4 (x) is turned on. • When Pd ≤ P2, SV4 (x) is turned off. * P1 and P2 of each outdoor unit are as follows **Pd control point** / **Heating** / **Cooling** (Compressor start-up priority 1 / Compressor start-up priority 2) P1: 3.38MPa / 3.70MPa / 3.70MPa P2: 3.33MPa / 3.68MPa / 3.68MPa 3) Release condition • When the system is stopped and the thermostat is off [3] SV4 low pressure release control The purpose of this control is to protect the Ps drop during compression ON. 1) Control condition 2) The outdoor unit that is turned on will judge each item individually. 2) Control content • When Ps ≤ 0.14, turn on SV4 (x). • When Ps ≥ 0.18, SV4 (x) is turned off. 3) Release condition • When the system is stopped and the thermostat is off [4] SV2 Accumulator stirring control • This control is a hot gas bypass control aimed at eliminating oil pools is the accumulator that occur during transient operation. 1) Control condition • Compressor ON 2) Control content • Turn on SV2 when any of the following conditions are met. • When the cooling room oil recovery control is started. • When defrost control for the purpose of oil recovery is started. • SV2 is turned off when any of the following conditions is met. • When TS2-TU> 5K is detected for 30 seconds while SV3F is ON. • When 2 minutes have passed since the oil recovery control in the cooling room was completed. • When 2 minutes have passed after the defrost control for the purpose of oil recovery is completed. • When defrost control is started for the purpose of oil recovery. • When the comp is turned off. * If 2 minutes have not passed since the cooling room oil recovery control or defrost control was completed at the time of restart, turn on SV2 until 2 minutes have passed.	

<table>
<tr><th>Item</th><th>Description of operation, numerical data, and other information</th><th>Remarks</th></tr>
<tr><td>9. Capacity release control</td><td>This control is a capacity release control that is performed for the purpose of suppressing the thermostat-OFF due to freezing prevention due to excessive capacity even in Min speed [rps] during cooling small capacity operation.

[1] Control condition
Perform when all the following conditions are met.
• During All cooling / simultaneous cooling / simultaneous heating operation
• When the compressor speed is less than A [rps]
<table><tr><th>Compressor</th><th>A [rps]</th></tr><tr><td>(77cc A3*1)</td><td>25.0Hz</td></tr><tr><td>(42cc A3*2)</td><td>30.6Hz</td></tr></table>• When TD(X) ≤ 100 ºC

[2] Control content
• When any of the indoor units that are thermostat-ON detects TCJ ≤ 3 °C or TC1 ≤ 3 °C while any of the compressors is ON, SV4 (x) is turned ON.
• When any of the indoor units that are thermostat-ON detects TCJ > 7 °C or TC1 > 7 °C while any compressor is ON, SV4 (x) is turned OFF.

[3] Release condition
• When the system is stopped and the thermostat is off
• When TD (X) > 102 °C is detected
• When the compressor speed is above A [rps]</td><td></td></tr>
<tr><td>10. High pressure release compressor shut down</td><td>This control function is aimed at automatically shutting down a compressor in an outdoor unit depending on Pd.
[1] Control details
• Compressors are shut down when Pd reaches or exceeds P0
• The compressor restart prevention timer (2 minutes 30 seconds) is set, and the control terminated.

<table><tr><th>Pd control point PO</th><th>All cooling</th><th>All Heating
Simultaneous cooling
Simultaneous Heating</th></tr><tr><td>compressor 1</td><td>3.78</td><td>3.53</td></tr><tr><td>compressor 2</td><td>3.73</td><td>3.49</td></tr></table></td><td></td></tr>
<tr><td>11. Case heater control</td><td>This control function is aimed at preventing the accumulation of refrigerant in those case, If the power supply has not been turned on for a specified period before a post-installation test run. Compressor failure may occur.
Similarly, when starting compressors after a long period of no power supply, it is recommended that the power supply be turned on for a while before operation is resumed, just like a post-installation test run.
This control function is sometimes used alongside an electrical changing of the compressor motor windings. In this case, a changing sound may be heard, but this is normal.

[1] Control details
• The heaters are turned on while the compressors are turned off.
• The heaters are turned off when TO sensor temperature becomes ≥ 28 °C、and are turned back on when TO sensor temperature becomes ≤ 25 °C.
• When the compressors are turned on, the heaters are kept on for 10 minutes.</td><td></td></tr>
</table>

Item	Description of operation, numerical data, and other information	Remarks
12. Inverter P.C.board control for compressor	[1] Current, power release value control The purpose of this control is to prevent high pressure rise and overheating of electric parts by reducing the compressor speed when the maximum current and maximum power value set for each model are exceeded. The maximum current and power value for each horsepower of each model are as follows HP / Maximum current / Maximum power 24* / 27.00A / 17.21kW 22* / 25.50A / 16.25kW 20* / 18.00A / 11.47kW 18* / 17.00A / 10.83kW 16* / 15.25A / 9.72kW 14 / 27.50A / 17.52kW 12 / 24.50A / 15.61kW 10 / 20.50A / 13.06kW 8 / 15.40A / 9.81kW *2 For comp models, it is the maximum value per comp. Even when the TH sensor temperature ≥ 80°C, the compressor speed is reduced, and when the TH sensor temperature < 72°C continues, the rotation speed increase is permitted. [2] Heat sink overheat abnormality 1) Stop the compressor operation when the TH sensor temperature exceeds 93°C. 2) When the above is stopped, the abnormal count is set to 1, and it restarts after 2 minutes and 30 seconds. If it continues the operation for 10 minutes or more after restarting, the trouble count will be cleared. 3) A trouble is confirmed with a trouble count of "4". [3] High pressure SW control 1) Inverter stops driving the compressor when the high pressure SW is operating. 2) When the above is stopped, the abnormal count is set to 1, and it restarts after 2 minutes and 30 seconds. If continues the operation for 10 minutes or more after restarting, the trouble count will be cleared. 3) The trouble count becomes "4" and the trouble is confirmed. The above display is "P04".	

Item	Description of operation, numerical data, and other information	Remarks
13. Heat sink condensation prevention control	Since the refrigerant cooling heat sink cools the device by the refrigerant temperature of the liquid pipe, if the liquid pipe temperature drops due to a gas shortage cycle, dew condensation on the device may occur. Therefore, the control is for the purpose of preventing dew condensation on the element. [1] Control condition • This control is performed while the comp is ON, and the control is activated 10 minutes after the system starts. • Except during startup control. • Except during defrosting operation. • After 10 minutes have passed since heating indoor unit increase control was completed. [2] Control content 1) During cooling operation, when TO-TL2 ≥ 5K is continued for 5 minutes 2) During heating operation, at the time point when TO supplement-TL2 ≥ 5K is continued for 5 minutes 3) The outdoor unit will be stopped, and the system restart prevention timer will be set. 4) When control content is detected 4 times, the check code is determined. (P07-04)	

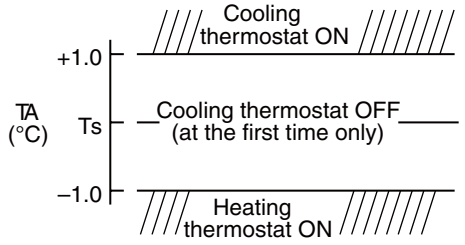
<Other points to note>

1) Cooling Operation at Low Outdoor Temperature
   ① When suction pressure (Ps) decreases, the indoor unit operation may stop due to anti-frost control based on the temperature of the TC sensor of indoor unit.
   ② When suction pressure (Ps) decreases, the compressor speed [rps] may be decreased due to cooling capacity control.
   ③ When discharge temperature (TD) is lower than 60℃, the compressor speed [rps] may be increased due to indoor unit command.

2) PMV (Pulse motor Valve)
   ① When power is turned on, the PMV will initialize and make a knocking sound. If there is no knocking sound, there is possibility of PMV malfunction. However, if the outdoor unit area has high ambient noise, there is possibility PMV knocking sound may not be heard.
   ② Do not remove PMV Coil (head part) during operation. It will affect the control valve opening.
   ③ When transporting the set, do not ever remove the PMV Coil. Valve will close and sealing the liquid refrigerant which may damage the valve.
   ④ When removing and reattaching the PMV Coil, push in the coil firmly until [Click] sound is heard, turn off the power and turn it on again.

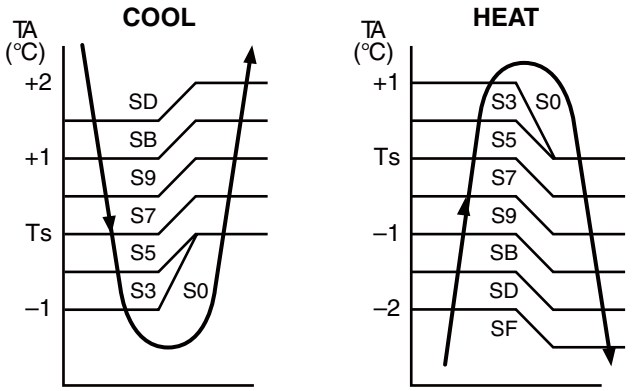
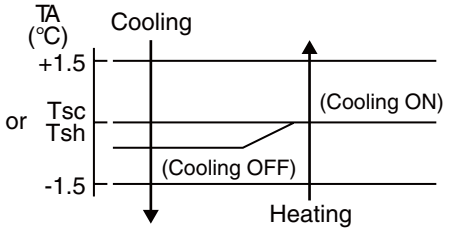
3) Fan mode during heating operation on same system line of indoor unit
   In the same system line of indoor unit, if there's one indoor unit is on the heating operation, the other indoor units cannot do Fan Mode. The indoor unit for which Fan Mode is selected will be forcibly stopped, and ["operation standby ⏻"] will be displayed on the remote controller. Refrigerant will accumulate in the indoor unit that is operating in fan mode. This condition is set to prevent repeated refrigerant recovery.

5-2. Indoor Unit

<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>1</td><td>When power supply is reset</td><td>1) Distinction of outdoor unit
When the power supply is reset, the outdoors are distinguished and the control is selected according to the distinguished result.
2) Setting of indoor fan speed and existence of air direction adjustment
Based on EEPROM data, select setting of the indoor fan speed and the existence of air direction adjustment.
3) If resetting the power supply during occurrence of a trouble, the check code is once cleared. After ON/OFF button of the remote controller was pushed and the operation was resumed, if the abnormal status continues, the check code is again displayed on the remote controller.</td><td></td></tr>
<tr><td>2</td><td>Operation mode selection</td><td>1) Based on the operation mode selecting command from the remote controller, the operation mode is selected.
<table>
<tr><th>Remote controller command</th><th>Control outline</th></tr>
<tr><td>STOP</td><td>Operation stops.</td></tr>
<tr><td>FAN</td><td>Fan operation</td></tr>
<tr><td>COOL</td><td>Cooling operation</td></tr>
<tr><td>DRY</td><td>Dry operation</td></tr>
<tr><td>HEAT</td><td>Heating operation</td></tr>
<tr><td>AUTO
Heat recovery system outdoor unit type</td><td>• TA and Ts automatically select COOL/HEAT operation mode for operation.
• The operation is performed as shown in the following figure according to TA value at the first time only.
(In the range of Ts – 1 < TA < Ts + 1, Cooling thermostat OFF (Fan) / Setup air volume operation continues.)</td></tr>
</table>


∗ Heat recovery system outdoor unit type can select automatic mode.
While a wireless remote controller is used, the mode is notified by “Pi Pi” (two times) receiving sound and the alternate flashing of [TIMER] and [READY].
To clear the alternate flashing, change the mode on the wireless remote controller.</td><td>TA: Room temp.
Ts: Setup temp.</td></tr>
<tr><td>3</td><td>Room temp. control</td><td>1) Adjustment range: Remote controller setup temperature (°C)
<table>
<tr><th></th><th>COOL/DRY</th><th>HEAT</th><th>AUTO∗</th></tr>
<tr><td>Wired type</td><td>18 to 29</td><td>18 to 29</td><td>18 to 29</td></tr>
<tr><td>Wireless type</td><td>17 to 30</td><td>17 to 30</td><td>17 to 30</td></tr>
</table></td><td>* Heat recovery system only</td></tr>
</table>

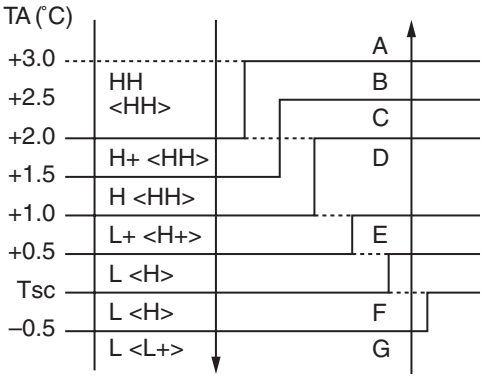
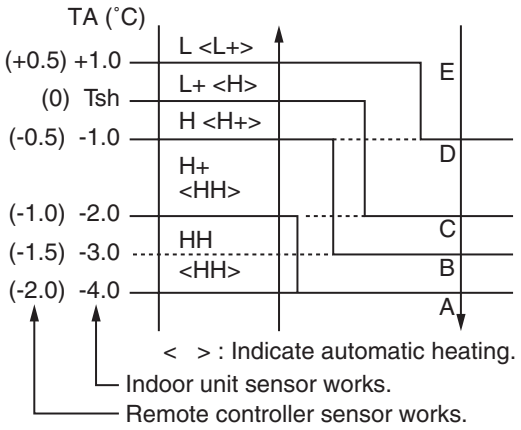
<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>3</td><td>Room temp. control (Continued)</td><td>2) By setting the CODE No. 06, the setup temperature in heating operation can be compensated.
<table><tr><th>Setup data</th><td>0</td><td>2</td><td>4</td><td>6</td></tr><tr><th>Setup temp. compensation</th><td>+0°C</td><td>+2°C</td><td>+4°C</td><td>+6°C</td></tr></table>The initial factory default value
<table><tr><th>Content</th><th>Set data</th></tr><tr><td>The initial factory default value</td><td>2</td></tr></table></td><td>Return air temperature shift of heating operation

Except while sensor of the remote controller is controlled
(Code No. [32], “0001”)</td></tr>
<tr><td>4</td><td>Automatic capacity control</td><td>1) Based on the difference between TA and Ts, the operation capacity is determined by the outdoor unit.
 
</td><td>Ts: Setup temp.
TA: Room temp.</td></tr>
<tr><td>5</td><td>Automatic cooling/heating control</td><td>1) The judgment of selecting COOL/HEAT is carried out as shown below. When TA exceeds Tsh by 1.5 for 10 minutes, the operation is thermostat OFF then, the heating operation (thermostat OFF) is changed to cooling operation.
 

Description in the parentheses shows an example of cooling ON/OFF. When TA is less than Tsh by 1.5 for 10 minutes, the operation is thermostat OFF then, the cooling operation(thermostat OFF) is changed to heating operation.

2) For the automatic capacity control after judgment of cooling/heating, refer to item No.4.
3) For temperature compensation of room temp. control in automatic heating, refer to item No.3.</td><td>∗ Heat recovery system only

Tsc: Setup temp. in cooling operation
Tsh: Setup temp. in heating operation + temp. compensation of room temp. control</td></tr>
</table>

No.	Item	Outline of specifications	Remarks
6	Fan speed selection	1) By the command from remote control, fan speed is changed. ((HH), (H+), (H), (L+), (L) or [AUTO]) 2) When the fan speed mode [AUTO] is selected, the fan speed varies by the difference between TA and Ts. **<COOL>**  < > : Indicate automatic cooling. • Fan speed mode [AUTO] in case when remote controller sensor works is equal to that in case when indoor unit sensor works. • If the fan speed has been changed once, it is not changed for 3 minutes. However when the air volume is changed, the fan speed changes. • When cooling operation has started, select a downward slope for the fan speed, that is, the high position. • If the temperature is just on the difference boundary, the fan speed is not changed. **<HEAT>**  < > : Indicate automatic heating. Indoor unit sensor works. Remote controller sensor works. ( ) : indicate the value when the remote controller sensor is worked. • If the fan speed has been changed once, it is not changed for 1 minute. However when the fan speed changed, the fan speed changes. • When heating operation has started, select an upward slope for the fan speed, that is, the high position. • If the temperature is at the difference boundary, the fan speed is not changed. • If TC2 ≥ 60˚C, the fan speed increases by 1 step.	HH > H+ > H > L+ > L > UL Depends on fan speed mode selection at the remote controller. (H+) and (L+) cannot be selected. Code No. [32] 0000: Indoor unit sensor (Main unit) 0001: Remote controller sensor TC2: Temperature of indoor heat exchanger sensor

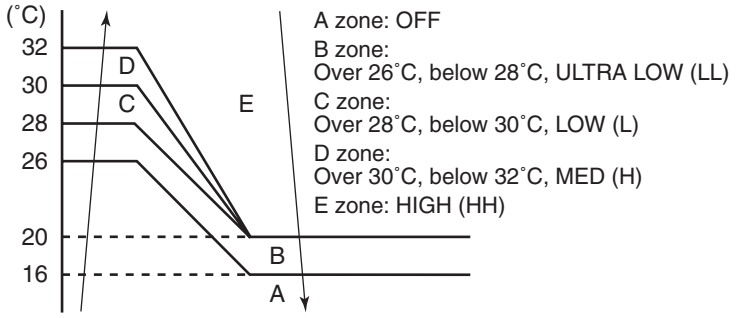
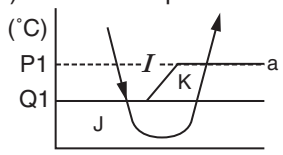
No.	Item	Outline of specifications	Remarks
6	Fan speed selection (Continued):		Setting of height ceiling mode at CODE No. [5D] or at SW501 on P.C. board.

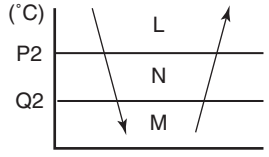
4-way, Compact 4-way (only UP015), 2-way, 1-way (SH)
(Fan speed selection of UP012 or less and UP018 for Compact 4-way are only Standard.)

CODE No. [5d]	Factory default		Type 1		Type 3		Type 6	
	0000		0001		0003		0006	
SW501 (1)/(2)	OFF/OFF		ON/OFF		OFF/ON		ON/ON	
Tap	COOL	HEAT	COOL	HEAT	COOL	HEAT	COOL	HEAT
F1					HH	HH	HH	HH
F2			HH	HH				
F3				H+	H+, H	H+, H	H+, H, L+, L	H+, H, L+, L
F4			H+					
F5		HH		H				
F6	HH		H		L+	L+		
F7	H+	H+			L	L		
F8		H		L+				
F9	H		L+	L				
FA		L+	L					
FB	L+	L						
FC	L							
FD	LL	LL	LL	LL	LL	LL	LL	LL

3) In heating operation, the mode changes to [LL] if thermostat is turned off.

4) When the optional R32 Refrigerant Leak Detector is connected and a leak of R32 Refrigerant is detected, the fan may operate at speed [HH].
For details, refer to item No. 26 "Leak detector control".

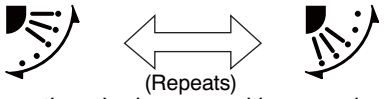
<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>7</td><td>Prevention of cold air discharge</td><td>1. In heating operation, the lowest temperature between TC1 sensor and the highest temperature between TC2 and TCJ sensor is set as the upper bound of the fan speed mode control.
• When B zone has been continuing for 6 minutes, the operation shifts to C zone.
• For the defrosting operation, the control point is set to +6˚C.
 
</td><td>TCJ: Temperature of indoor heat exchanger sensor
• In D and E zones, priority is given to remote controller fan speed setup.
• In A zone “ ❁ ” is displayed.</td></tr>
<tr><td>8</td><td>Freeze prevention control (Low temp. release)</td><td>1. In all cooling operation, the air conditioner operates as described below based upon temp. detected by TC1, TC2 and TCJ sensors.
• When “J” zone is detected for 5 minutes, the thermostat is forcedly off.
• In “K” zone, the timer count is interrupted, and held.
• When “I”zone is detected, the timer is cleared and the operation returns to the normal operation.
• If “J” zone continues, operation of the indoor fan in LOW mode continues until it reaches the “I”zone.
It is reset when the following conditions are satisfied.
Reset conditions
1) TC1 ≥ 12˚C and TC2 ≥ 12˚C and TCJ ≥ 12˚C
2) 20 minutes passed after stop.
 

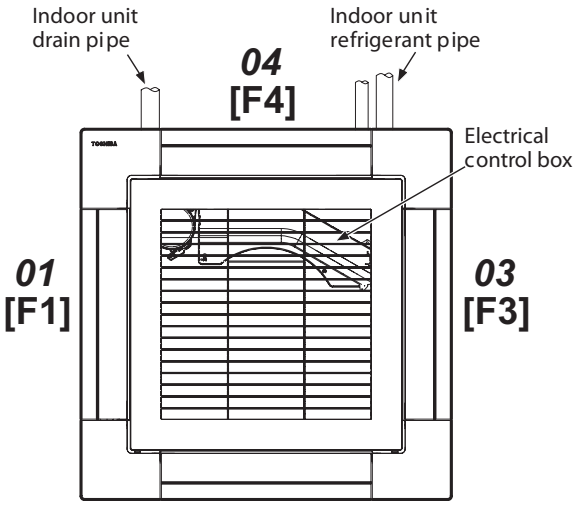
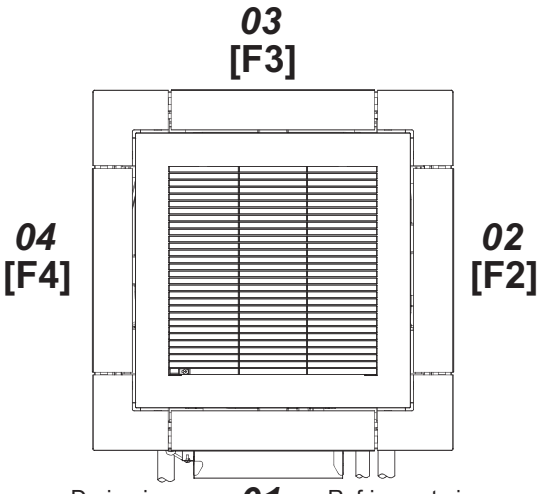
<table>
<tr><th></th><th>TC1</th><th>TC2, TCJ</th></tr>
<tr><td>P1</td><td>10˚C (5˚C)</td><td>–10˚C</td></tr>
<tr><td>Q1</td><td>0˚C</td><td>–14˚C</td></tr>
</table>
2. In all cooling operation, the air conditioner operates as described below based upon temp. detected by TC2 and TCJ sensors.
• When “M” zone is detected for 45 minutes, the thermostat is forcedly off.
• In “N” zone, the timer count is interrupted and held.
• When shifting to “M” zone again, the timer count restarts and continues.
• If “L”zone is detected, the timer is cleared and the operation returns to normal operation.
Reset conditions
1) TC1 ≥ 12˚C and TC2 ≥ 12˚C and TCJ ≥ 12˚C
2) 20 minutes passed after stop.
 

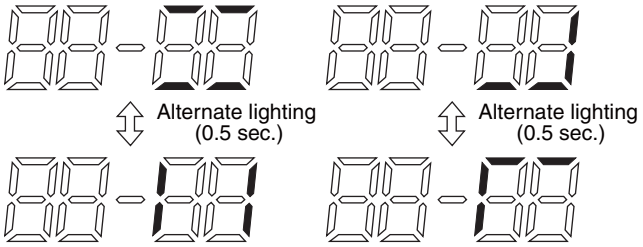
<table>
<tr><th></th><th>TC2, TCJ</th></tr>
<tr><td>P2</td><td>5˚C</td></tr>
<tr><td>Q2</td><td>–2.0˚C</td></tr>
</table></td><td>TC1: Temperature of indoor heat exchanger sensor
( ) value:
When the power supply is turned on, the forced thermostat becomes OFF if the temperature is less than this indicated temperature.</td></tr>
</table>

No.	Item	Outline of specifications	Remarks
9	Refrigerant (Oil) recovery control in cooling operation	Indoor units during stop/thermostat OFF or FAN operation perform following controls when a refrigerant (compressor oil) recovery signal is received from outdoor unit at the cooling operation, (1) Opening the indoor unit PMV at constant valve opening. (For a maximum of about 4 minutes) (2) Operating the drain pump for about one minute, during recovery control and after the control finished. Also, indoor unit fan or louvers may operate depending on the indoor unit type.	Control is performed per two hours or when the outdoor unit determines its need.(It varies depending on the indoor units connected.)
10	Refrigerant (Oil) recovery control in heating operation	Indoor units during stop/thermostat OFF or FAN operation perform following controls when a refrigerant (compressor oil) recovery signal is received from outdoor unit at the heating operation, (1) Opening the indoor unit PMV at constant valve opening. (For a maximum of about 20 minutes) (2) TC2 temperature is detected to close its PMV. Also, the fan, louvers, drain pump may operate for about one minute after recovery control finished depending on indoor unit types, until the number of recovery control reaches the predetermined number. NOTE The PMV, indoor fan, or louvers may operate through the outdoor unit instruction. For its detail, refer to the outdoor unit service guide.	Indoor unit during cooling thermostat OFF or FAN operation stops the indoor fan and displays "Operation standby ⏻". Control is performed per one hour or when the outdoor unit determines its need.(It varies depending on the indoor units connected.)
11	Compensation control for short intermittent operation	1) For 3 minutes after start of operation, the operation is forcedly continued even if the unit enters in Thermostat-OFF condition. 2) However the thermostat is OFF giving prior to COOL/HEAT selection, READY ✳ for operation and protective control.	Usually the priority is given to 5 minutes at outdoor controller side.
12	Drain pump control	1) Drain pump operates while in cooling operation. (including DRY operation) 2) While the drain pump is operating, if the float switch is operated, the outdoor unit will stop operating but the drain pump will keep continuously operating. After that, the check code is issued. 3) When the drain pump stops operating, if the float switch is operated, the outdoor unit will stop and the drain pump will start operating. After the float switch is being operating for roughly 5 minutes, the check code will be issued.	Check Code [P10] • A model with a drain pump : Compact 4-way 2-way cassette 1-way cassette (SH) 4-way cassette
13	Elimination of retained heat	1) When the unit stopped from [HEAT] operation, the indoor fan operates with [L] for approx. 30 seconds.	
14	HA control	1) ON/OFF operation is available by input of HA signal from the remote site when connecting to remote controller or the remote ON/OFF interface. 2) The HA terminal is ON/OFF depending on HA control output. 3) The I/O specifications of HA is in accordance with JEMA standard.	When using HA terminal (CN61) for the remote ON/OFF, a connector sold separately is necessary. In case of group operation, use the connector to connect HA terminal to either master or follower indoor unit.

<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>15</td><td>Alarm output setup</td><td>The alarm output from the indoor P.C. board is output in each indoor unit during group control, but it can be set so as to be output in the header unit and follower units.
Following the table below, register the setting data in DN Code "79".
<table>
<tr><td>DN</td><td>Alarm output of the header indoor unit</td><td>Setting data</td></tr>
<tr><td rowspan="2">79</td><td>Not including the state of follower units</td><td>0000 (Factory default)</td></tr>
<tr><td>Including the state of follower units</td><td>0001</td></tr>
</table></td><td>Be sure to change the setting data while operation stops.</td></tr>
<tr><td>16</td><td>Display of filter sign [▦]
(Not provided to the wireless type)</td><td>1) The filter sign is displayed with LC by sending the filter-reset signal to the remote controller when the specified time (2500H) elapsed as a result of integration of the operation time of the indoor fan.
2) The integrated timer is cleared when the filter-reset signal is received from the remote controller.
In this time, if the specified time elapsed, the counted time is reset and the liquid crystal display is deleted.
<table>
<tr><td>Filter service life</td><td>2500H</td></tr>
<tr><td>Type</td><td>Compact 4-way cassette type
1-way cassette type (SH)
2-way cassette type
4-way cassette</td></tr>
</table></td><td>[▦ FILTER] goes on.
The filter sign is not displayed in RBC-ASCU11-∗.</td></tr>
<tr><td>17</td><td>Display of [READY]
[HEAT READY]</td><td>< READY> Displayed on the remote controller
* This may not be displayed depending on the connected outdoor unit.
1) When the following check codes are indicated.
• There is an indoor unit that detected the indoor overflow [P10].
• There is an indoor unit that detected the interlock alarm [L30].
2) When the operation mode of indoor unit is temporarily restricted. (At this time, the indoor unit stands by in forced thermostat-off state.)
• [COOL/DRY] operation is unavailable because the other indoor unit operates with [HEAT] mode.
• [HEAT] operation is unavailable because COOL priority (SW11-bit1 of the Outdoor I/F P. C. board is ON) is set and the other indoor unit operates with [COOL/DRY] mode.
• When the operation mode of the outdoor unit is restricted by an optional board for outdoor units, central controller etc.
3) The indoor fan stops because the system performs [Recovery operation for heating refrigerant (Oil)].
<HEAT READY> Displayed on the remote controller
The indoor fan stops in order to prevent discharge of cool air when heating operation started or during heating operation. (including the defrost operation during thermostat-OFF)</td><td>• < READY ⏻ > display
No display for wireless type remote controller
• <HEAT READY ☀> display</td></tr>
</table>

<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>18</td><td>Selection of central control mode</td><td>1) Selection of the contents that can be operated by the remote controller at the indoor unit side is possible according to setting at the central controller side.
2) Setting contents
<table><tr><th rowspan="2">Operation from central controller</th><th colspan="6">Operation on remote controller</th></tr><tr><th>ON/OFF setting</th><th>Operation selection</th><th>Timer setting</th><th>Temp. setting</th><th>Fan speed setting</th><th>Air direction setting</th></tr><tr><td>Individual</td><td>○</td><td>○</td><td>○</td><td>○</td><td>○</td><td>○</td></tr><tr><td>[Central 1]</td><td>×</td><td>○</td><td>×</td><td>○</td><td>○</td><td>○</td></tr><tr><td>[Central 2]</td><td>×</td><td>×</td><td>×</td><td>×</td><td>○</td><td>○</td></tr><tr><td>[Central 3]</td><td>○</td><td>×</td><td>○</td><td>×</td><td>○</td><td>○</td></tr><tr><td>[Central 4]</td><td>○</td><td>×</td><td>○</td><td>○</td><td>○</td><td>○</td></tr></table>(○: Operation possible ×: Operation impossible)</td><td></td></tr>
<tr><td>19</td><td>Louver control</td><td>1) Louver position setup
• When the louver position is changed, the position moves necessarily to downward discharge position once to return to the set position.
• The louver position can be set up in the following operation range.
In cooling/dry operation In heating/fan operation
 
• In group twin/triple operation, the louver positions can be set up collectively or individually.
In case that HEAT refrigerant recovery control was performed in STOP status, the louver position becomes horizontal when the operation is resumed.
2) Swing setup
Compact 4-way, 2-way cassette, 1-way cassette (SH), 4-way cassette :
• [SWING] is displayed and the following display is repeated.
In all operations
 
(Repeats)
• In group operation, the louver positions can be set up collectively or individually.
3) When the unit stopped or the warning was output, the louver is automatically set to full closed position.
4) When PRE-HEAT ֍ (Heating ready) is displayed (Heating operation started or defrost operation is performed), heating thermostat is off or self-cleaning is performed, the louver is automatically set to horizontal discharge position.
* The louver which air direction is individually set or the locked louver closes fully when the unit stops and the louver is automatically set to horizontal discharge position when PRE-HEAT ֍(Heating ready) is displayed, heating thermostat is off.</td><td>Subject model :
Compact 4-way
2-way cassette
1-way cassette (SH)
4-way cassette</td></tr>
</table>

No.	Item	Outline of specifications	Remarks
19	Louver control (Continued)	**<<Individual air direction setup>>** • Pushing UNIT LOUVER Louver select button enables every discharge port to set up the air direction. (In the case of RBC-AMTU3∗) The louver numbers that are displayed on the display part correspond to those in the following figure. • In case of no input (key operation) for approx. 5 seconds during setting of individual air direction (during displaying of louver No. on the remote controller screen), the remote controller screen returns to the normal display screen. • For the air direction illustration during normal operation, the air direction of the least No. among the louvers which are block-set is displayed. • While individual air direction is being set, the remote controller operation (Illustration of air direction) and operation of the real machine are linked. • When selecting a case, UNIT LOUVER Louver select button is not pushed or louver No. is not displayed, the air directions of all the louvers are collectively set up.  **4-way cassette type**  **Compact 4-way cassette type**	Subject model : 4-way cassette Compact 4-way Setup from the remote controller without UNIT LOUVER button is unavailable.

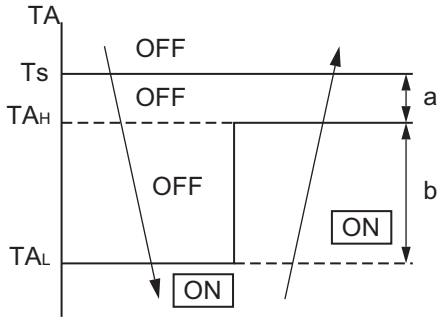
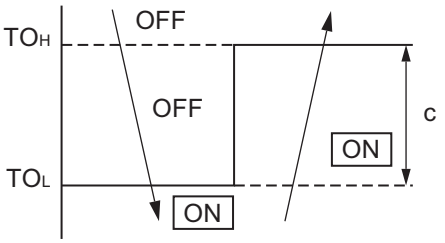
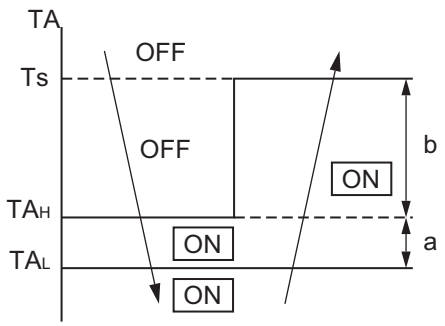
No.	Item	Outline of specifications	Remarks
19	Louver control (Continued)	**<<Selection of Swing mode>>** • For the Swing mode, the following three types of modes are selectable and settable by keeping Swing/Direction SWING/FIX button pushed for 4 seconds or more on the remote controller. (In the case of RBC-AMTU3∗) Swing mode can be selected by Code No.(DN) setup [F0] (In the case of RBC-ASCU11-∗). 1) Standard (4 pieces: same phase) swing → Data: [0001 (At shipment)] When Swing operation is selected, four louvers align at the horizontal discharge position and then start the Swing operation at the same time. 2) Dual swing → Data: [0002] When operation is selected, the louvers of louver No. [01] and [03] move to the horizontal discharge position, the louvers of louver No. [02] and [04] move to the downward discharge position and then start the Swing operation at the same time. 3) Cycle swing → Data: [0003] When operation is selected, the louver No. [01] moves to the horizontal discharge position, [03] to the downward discharge position, [02] and [04] to the middle position and then start the Swing operation at the same time. • In case of selecting the Swing mode, “Dual swing” or “Cycle swing”, the following numerals is displayed at the center of the remote controller screen for approx. 3 seconds when SWING/FIX button was pushed to select [SWING]. (No display for the standard swing) (In the case of RBC-AMTU3∗)  **Dual swing** **Cycle swing** **<<Louver lock (Louver fix)>>** • For the air direction setup for each discharge port, the louver position can be locked during the normal operation. • An arbitrary air direction of an arbitrary louver can be registered and set by keeping UNIT LOUVER button pushed for 4 seconds or more on the remote controller. (In the case of RBC-AMTU3∗) Louver lock can be selected by Code No.(DN) setup [F1], [F2], [F3] or [F4]. (In the case of RBC-ASCU11-∗) • The louver lock can be set by registering the setup data to Code No.(DN) [F1] to [F4] according to the following table.	Subject model : Compact 4-way 4-way cassette Carry out setting operation during stop of the unit; otherwise the unit stops operation. Carry out setting operation during stop of the unit; otherwise the unit stops operation.

Code No.(DN)	Objective louver No.	Setup data
F1	01	0000: Release (At shipment) 0001: Horizontal discharge position ~ 0005: Downward discharge position
F2	02	
F3	03	
F4	04	

<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>19</td><td>Louver control
(Continued)</td><td>• If there is the locked louver in the unit, [⊕] goes on the remote controller screen.
• While the following controls are performed, the louvers operate even if executing the louver lock.
<table><tr><th></th><th>Control which ignores lock</th><th>Objective louver No.</th></tr><tr><td>①</td><td>Operation stop</td><td>Full-close position</td></tr><tr><td>②</td><td>When heating operation started</td><td>Horizontal discharge position</td></tr><tr><td>③</td><td>Heating thermostat OFF</td><td>Horizontal discharge position</td></tr><tr><td>④</td><td>During defrost operation</td><td>Horizontal discharge position</td></tr><tr><td>⑤</td><td>Initialize operation</td><td>Full-close position</td></tr></table>• The real louver corresponding to the louver No. displayed on the remote controller screen during setting of louver lock operates swinging.</td><td>For the setting operation, refer to [How to set louver lock] of Installation Manual.

It is position check operation and it does not link with the real louver and air direction setup (Illustration on the remote controller screen).</td></tr>
<tr><td>20</td><td>DC motor</td><td>1) When the fan starts, positioning is performed for the starter and the rotor. (Vibrate slightly)
2) DC motor operates according to the command from the indoor controller.
(Note) If the fan rotates by entry of outside air, etc while the air conditioner stopped, the indoor unit may operate as the fan motor stops.
(Note) If the fan lock was detected, the operation of the indoor unit stops and the check code is displayed.</td><td>Check code [P12]
Subject model :
Compact 4-way
2-way cassette
1-way cassette (SH)</td></tr>
<tr><td>21</td><td>Power saving mode</td><td>(In the case of RBC-AMTU3∗)
1. Push the SAVE button on the remote controller
2. The “ ” segment lights up on the wired remote controller display.
3. The requirement capacity ratio is limited to approximately 75 %.
4. If the power saving operation is enabled, the settings are retained when the operation is stopped, when the mode is changed, or when the power is reset.
The power saving operation will be enabled at the next time the operation starts.
• The operation may differ depending on the connected outdoor unit. Refer to the Service Manual of the outdoor unit.</td><td></td></tr>
</table>

<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>22</td><td>Occupancy sensor</td><td>1) During the Occupancy sensor operation (DN code: [B5] [0001] and [B6] [0002 to 0005]), when there is no people in the Occupancy sensor range, it is automatically switched to the operation for the absence.
2) The Occupancy sensor operation can change by [DN code : B6] as follows, and operates according to the operation at absent time, if time or absence of the setting contents continues. However time counting starts after the room temperature is stabilized. (after for 30 minutes operation)
DN [B6]<table><tr><th>Data</th><th>Setting contents</th></tr><tr><td>0000</td><td>Invalid</td></tr><tr><td>0001 to 0005</td><td>30 minutes to 150 minutes (30 minutes each)</td></tr></table>3) The operation at absent time can be changed by [DN code : B7].
DN [B7]<table><tr><th>Data</th><th>Operation at absent time</th></tr><tr><td>0000</td><td>Circulator</td></tr><tr><td>0001</td><td>Operation stop</td></tr></table>4) If the operation at absent time stops during group operation, or absence is fixed in each system, the operation starts circular operation once, and then the operation stops when absence was determined on all group.
* DN [06] and DN [B7] can be set on the "Occupancy sensor" menu of the wired remote controller RBC - AMSU5∗.</td><td>The Occupancy sensor can be set up by wired remote controller RBC-AMSU5∗</td></tr>
<tr><td>23</td><td>Soft cooling</td><td>* Wired remote controller : RBC-AMSU5∗ is required.
1) Sensation of draft can be suppressed by controlling performance and correcting the louver angle during cooling operation.
2) However, it may not cool well because the operation will be performed with the cooling capacity suppressed.
3) Perform operations from the remote controller menu to use soft cooling.</td><td></td></tr>
<tr><td>24</td><td>Dual set point (AUTO mode)</td><td>1) The temperature for heating operations and cooling operations can be set separately in AUTO mode when dual set point is valid.
2) The compressor will turn off (thermostat-OFF) when reaching the set temperature for heating operations and cooling operations.
3) Set CODE No. (DN) [77] to enable Dual set point.
DN [77]<table><tr><th>Data</th><th>Dual set point</th></tr><tr><td>0000</td><td>Unavailable (Factory default)</td></tr><tr><td>0002</td><td>Available</td></tr></table></td><td>This function cannot be used with remote controllers that are not RBC-AMSU5∗.</td></tr>
</table>

No.	Item	Outline of specifications	Remarks
25	Secondary heating	Secondary heating can be used while heating operations are performed. <Control Outline (Normal Mode)> 1) If the difference between the indoor temperature and the outdoor temperature is large while the air conditioner is operating, turn ON the secondary heating. 2) This function is valid when the CODE No. (DN) [DC] is set to ”0001” (0.5ºC) to “0010” (5.0ºC) using the wired remote controller, and the output to the external heating source will turn ON if the room temperature satisfies the condition. 3) The output will always stay ON while defrosting operations are being performed.  4) The output can be turned on by the outdoor temperature when CODE No. (DN) [C7] is set to “0001” (1ºC) to “0010” (10ºC) using the wired remote controller.  <Control Outline (Flip Mode)> 1) If the difference between the room temperature and the set temperature is large while using secondary heating, run the air conditioner. 2) This function is valid when the CODE No. (DN) [C5] is set to ”0001” (Flip mode) or the CODE No. (DN) [C7] is set to “0001” (1ºC) to “0010” (10ºC) using the wired remote controller, and when the output is switched ON when the room temperature satisfies the conditions. * The outdoor temperature determination is invalid whilst this control is performed.  	TAH : Temp.set air high (= Ts - a) TAL : Temp.set air low (= TAH - b) TOH : Temp.set out high TOL : Temp.set out low (= TOH - c)

No.	Item	Outline of specifications	Remarks
25	Secondary heating (Continued)		

DN [C5]

Data	Secondary heating mode
0000	Normal mode (Factory default)
0001	Flip mode

DN [C6]

Data	TO_H: Set temp. out (high) [ºC]
-0015 to 0015	"-0015": -15ºC to "0015": 15ºC "0000": 0ºC (Factory default)

DN [C7]

Data	c : TO_H - TO_L [ºC]
0000	Unavailable (Factory default)
0001 to 0010	0001: 1ºC to "0010": 10ºC

DN [DB]

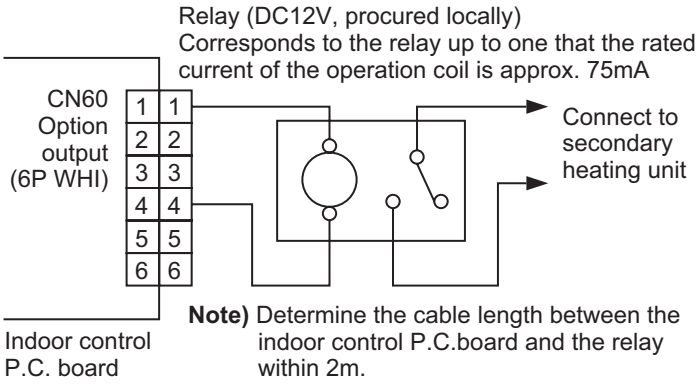
Data	b : TA_H - TA_L [ºC]
0001 to 0010	"0001": 0.5ºC to "0010": 5.0ºC "0006": 3ºC (Factory default)

DN [DC]

Data	a : Ts - TA_H (Normal mode)[ºC] TA_L - Ts (Flip mode)[ºC]
0000	Unavailable (Factory default)
0001 to 0010	0001: 1ºC to "0010": 10ºC

<Wiring>

1) Use ① - ④ pin (Cooling output, DC 12 V) of CN60 on indoor P.C. board for output.



Note) Determine the cable length between the indoor control P.C.board and the relay within 2m.

2) If there is no CN60 on the P.C. board (MCC-1643 model), install separately-sold Application control kit (TCB-PCUC2E), and use "OUT1 to OUT3" of the Signal output terminal block (TB1). At this time, select "1" (Cool dry output) for "SW1 to SW3". Following the installation manual of the Application control kit for detailed contents relating to wiring.

* The output state can be checked from “Monitor function” on the wired remote controller. See the manual for the remote controller for operation methods of “Monitor function”.

Monitor CODE No.	Secondary heating output
E5	- - - -: Unavailable 0000: OFF 0001: ON

<table>
<tr><th>No.</th><th>Item</th><th>Outline of specifications</th><th>Remarks</th></tr>
<tr><td>26</td><td>R32 refrigerant Safety measures setting</td><td>• When connecting to an outdoor unit that uses R32 refrigerant, the following settings must be made according to the safety system used.
* Floor standing type (Including concealed type and cabinet type) cannot be connected to outdoor units that use R32 refrigerant.
• Set the CODE No.(DN)[107] for each indoor unit.
For details of each item, refer to the Install Manual and Service Manual of the outdoor unit.
DN[107]<table><tr><th>Data</th><th>Safety measures</th></tr><tr><td>0000</td><td>No safety measures</td></tr><tr><td>0001</td><td>Pump-down operation (Factory default)</td></tr><tr><td>0002</td><td>Individual shut-off operation</td></tr><tr><td>0003</td><td>Leak Detector only</td></tr></table>* When using the optional R32 refrigerant Leak Detector, select a data other than "0000".</td><td>Indoor unit type usable with R32 refrigerant:
4-way cassette type,
Compact 4-way cassette type,
2-way cassette type,
1-way cassette type</td></tr>
<tr><td>27</td><td>R32 refrigerant Leak Detector control</td><td>Refrigerant detection control
1) When the optional R32 refrigerant Leak Detector is connected and safety measures are set (Item No. 26), the indoor unit controls to detect refrigerant leakage.
2) When the indoor unit receives the refrigerant leak detection signal, check code J30 (Refrigerant leak detection) is displayed on the remote controller.
3) When refrigerant leakage is detected, ventilation output (CN32) is turned ON.
4) When DN[107] (R32 Safety measures) is "0001" or "0003" and DN[108] (Circulation flow operation mode) is "0000", the fan of the indoor unit is operated to prevent refrigerant from stagnating in the room (Fan speed is HH, louver position is middle). In this case, the fan continues to operate even if the operation is stopped by the remote controller.
5) When the indoor unit receives a refrigerant leak clear signal from the Leak Detector, it stops ventilation output and fan operation.

Refrigerant sensor maintenance control
* Operation is possible under the following conditions.
1) When the signal of refrigerant sensor trouble is received or the signal from the Leak Detector is interrupted, the indoor unit displays check code J29 (Leak Detector trouble) on the wired remote controller.
2) When the energized time of the Leak Detector is near the end of its service life, the indoor unit outputs the notification code No. 204 (Leak Detector life advance display) and displays the icon of the notification code on the wired remote controller.
3) When the energized time of the Leak Detector reaches the end of its service life, the indoor unit displays check code J31 (Refrigerant leak detection sensor exceeding its life of the product) on the wired remote controller.</td><td>Indoor unit type usable with R32 refrigerant:
4-way cassette type,
Compact 4-way cassette type,
2-way cassette type,
1-way cassette type</td></tr>
<tr><td>28</td><td>Battery kit Lifetime Notification</td><td>When the indoor unit detects that the battery kit connected to the Flow Selector unit or shutoff valve has reached the end of its service life, it outputs notification code No. 203 (Flow Selector unit battery dead) and displays a notification code icon on the wired remote controller.</td><td>R32 refrigerant systems only</td></tr>
</table>

6. APPLIED CONTROL AND FUNCTIONS

6-1. Method to Set Outdoor Unit Function Code No. (O.DN)

The settings can be changed by operating the switches on the interface board.
In the TU2C-Link communication system, it can also be done by operating the wired remote controller.

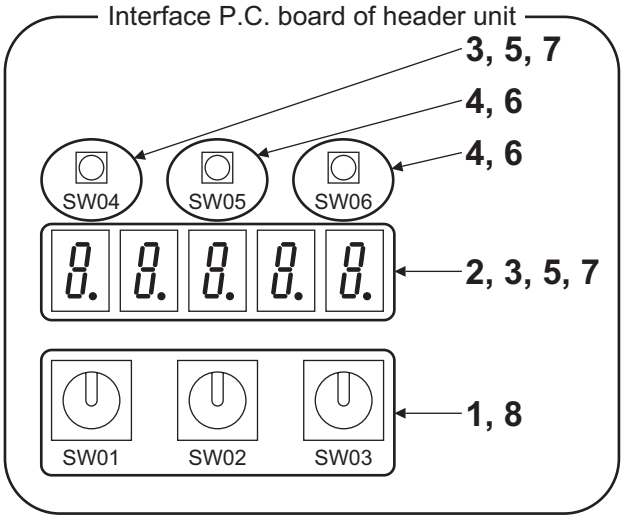
◆ Applicable controls setup

(settings at the site)

Basic procedure
Be sure to stop the air conditioner before making settings.
(Change the setup while the air conditioner is networking.)

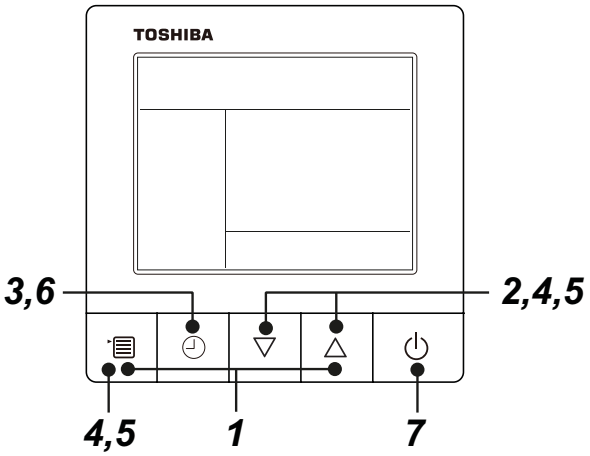
When switching settings from the interface P.C. board of the outdoor unit

1. Set the rotary switch of the interface P.C. board on the outdoor unit to SW01= [9], SW02= [1] and SW03= [1].
2. The 7-segment display shows “d n.S E t”.
3. When SW04 is pressed, the 7-segment display switches to “d n.0 0 1” and the outdoor unit code NO. [001] is displayed.
4. Change outdoor unit code NO. [∗ ∗ ∗] with SW05 or SW06.
   Press SW05 to advance the code. Press and hold SW05 to advance in 5 steps.
   Press SW06 to return the code. Press and hold SW05 to return in 5 steps.
5. When SW04 is pressed, the 7-segment display blinks “d.* * * *” and the setting data [∗ ∗ ∗ ∗] being set is displayed.
6. Change setting data [∗ ∗ ∗ ∗] with SW05 or SW06.
   Press SW05 to advance the data. Press SW06 to return the setting data.
7. Push and hold SW04 for more than 2 seconds.
   When the flashing stops and remain lit on the display, the setting is complete.
   (To return to the item code setting after completing the setting, or to return to the item code setting without setting, press SW04 once.)
8. Set the rotary switch on the interface P.C. board of the outdoor unit back to SW01= [1], SW02= [1], SW03= [1].
9. Reset the power of the outdoor unit (power off for one minute or more) .



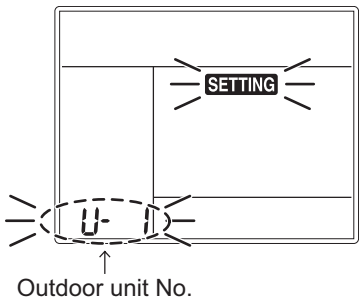
When switching from the wired remote controller (RBC-ASCU11*)

Basic procedure
Be sure to stop the air conditioner before making settings.
(Change the setup while the air conditioner is not working.)



1 **Push and hold menu button and [△] setting button simultaneously for 10 seconds or more.**

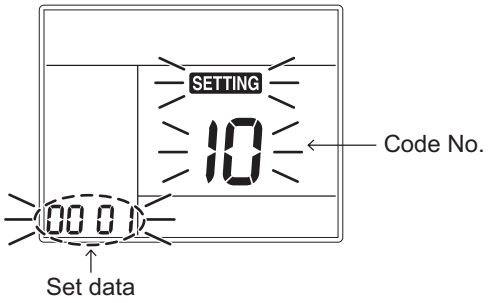
- After a while, the display flashes as shown in the figure. “ALL” is displayed as outdoor unit numbers during initial communication immediately after the power has been turned on.



2 **Each time [▽] [△] setting button is pushed, outdoor unit numbers in the group control change cyclically. Select the outdoor unit to change settings for.**

- The fan of the selected outdoor unit runs. The outdoor unit can be confirmed for which to change settings.

3 **Push OFF timer button to confirm the selected outdoor unit.**



4 **Push the menu button to make Code No. [∗∗] flash.**
Change Code No. [∗∗] with [▽] [△] setting button.

5 **Push the menu button to make Set data [∗∗∗∗] flash.**
Change Set data [∗∗∗∗] with [▽] [△] setting button.

6 **Push OFF timer button to complete the set up.**

• To change other settings of the selected outdoor unit, repeat from Procedure ***4*** .

7 **When all the settings have been completed, push ON/OFF button to finish the settings. (Return to the normal mode).**

" SETTING " flashes and then the display content disappears and the air conditioner enters the normal stop mode. (The remote controller is unavailable while " SETTING " is flashing.)

• To change settings of another outdoor unit, repeat from Procedure ***1*** .

Outdoor Unit Function Code No. (O. DN) Table (Includes Functions Needed to Perform Applied Control on Site)

<table>
<tr><th>DN</th><th>Item</th><th>Description</th><th>At shipment</th></tr>
<tr><td>003</td><td>Type Setting</td><td>Code range : 0000 to 0255
<table>
<tr><td>Model name</td><td>O.DN[003]</td><td>Model name</td><td>O.DN[003]</td></tr>
<tr><td>Undefined</td><td>0000</td><td>MMY-SUG1601****-E</td><td>0005</td></tr>
<tr><td>MMY-SUG0801****-E</td><td>0001</td><td>MMY-SUG1801****-E</td><td>0006</td></tr>
<tr><td>MMY-SUG1001****-E</td><td>0002</td><td>MMY-SUG2001****-E</td><td>0007</td></tr>
<tr><td>MMY-SUG1201****-E</td><td>0003</td><td>MMY-SUG2201****-E</td><td>0008</td></tr>
<tr><td>MMY-SUG1401****-E</td><td>0004</td><td>MMY-SUG2401****-E</td><td>0009</td></tr>
</table>
<table>
<tr><td>Model name</td><td>O.DN[003]</td><td>Model name</td><td>O.DN[003]</td></tr>
<tr><td>Undefined</td><td>0000</td><td>MMY-SUG1601****-A</td><td>0014</td></tr>
<tr><td>MMY-SUG0801****-A</td><td>0010</td><td>MMY-SUG1801****-A</td><td>0015</td></tr>
<tr><td>MMY-SUG1001****-A</td><td>0011</td><td>MMY-SUG2001****-A</td><td>0016</td></tr>
<tr><td>MMY-SUG1201****-A</td><td>0012</td><td>MMY-SUG2201****-A</td><td>0017</td></tr>
<tr><td>MMY-SUG1401****-A</td><td>0013</td><td>MMY-SUG2401****-A</td><td>0018</td></tr>
</table>
* DN Code [003] = 0000 : Undefined</td><td>According to type</td></tr>
<tr><td>004</td><td>7-segment Display Contents Control</td><td>0000 : Outdoor unit No.
0001 : Start priority number</td><td>0000 : Outdoor unit No.</td></tr>
<tr><td>005</td><td>Prohibition/Permission of the NFC Setting</td><td>0000 : Until 48 hours elapsed from the outdoor unit Power ON, WTA App can start a test operation. After 48 hours, it cannot.
0001 : Regardless of the elapsed time, WTA cannot start test operation.
0002 : Regardless of the elapsed time, WTA can start test operation.</td><td>0000</td></tr>
<tr><td>007</td><td>Compressor Maintenance Period Time</td><td>0000 : 0h
0001 to 0063 (1000 h to 63000 h)</td><td>0000 : 0h</td></tr>
<tr><td>008</td><td>Operation Mode Selection Control</td><td>0000 : Non-selected Indoor units keep stand-by state (thermostat OFF).
0001 : Changing non-selected indoor units the mode selected</td><td>0000 : Non-Priority</td></tr>
<tr><td>009</td><td>Capacity / Power Demand Control</td><td>0000 : Capacity demand
0001 : Power demand</td><td>0000 : Capacity demand</td></tr>
<tr><td>00A</td><td>Power consumption upper limit standard value setting Heating (For power demand)_High</td><td rowspan="4">Code range
[0A] [0C] : 0000 to 0255 (1 kW to 255 kW)
[0B] [0D] : 0000 to 0099 (0.00 kW to 0.99 kW)
<table>
<tr><td colspan="2" rowspan="2">Power consumption upper limit standard value</td><td colspan="2">DN Code</td></tr>
<tr><td>Heating</td><td>[00A]</td><td>[00B]</td></tr>
<tr><td colspan="2">Cooling</td><td>[00C]</td><td>[00D]</td></tr>
<tr><td colspan="2">No power demand function</td><td>0000</td><td>0000</td></tr>
<tr><td colspan="2">0.01 kW</td><td>0000</td><td>0001</td></tr>
<tr><td colspan="2">0.02 kW</td><td>0000</td><td>0002</td></tr>
<tr><td colspan="2">–</td><td>–</td><td>–</td></tr>
<tr><td colspan="2">–</td><td>–</td><td>–</td></tr>
<tr><td colspan="2">10.00 kW</td><td>0010</td><td>0000</td></tr>
<tr><td colspan="2">–</td><td>–</td><td>–</td></tr>
<tr><td colspan="2">–</td><td>–</td><td>–</td></tr>
<tr><td colspan="2">30.50 kW</td><td>0030</td><td>0050</td></tr>
<tr><td colspan="2">–</td><td>–</td><td>–</td></tr>
<tr><td colspan="2">–</td><td>–</td><td>–</td></tr>
</table></td><td>0000 : 0kW</td></tr>
<tr><td>00b</td><td>Power consumption upper limit standard value setting Heating (For power demand)_Low</td><td>0000 : 0kW</td></tr>
<tr><td>00C</td><td>Power consumption upper limit standard value setting Cooling (For power demand)_High</td><td>0000 : 0kW</td></tr>
<tr><td>00d</td><td>Power consumption upper limit standard value setting Cooling (For power demand)_Low</td><td>0000 : 0kW</td></tr>
<tr><td>00E</td><td>Setting Value during Demand Control</td><td rowspan="3">Setting Value during Demand Control for demand standard specifications can be set with DN code [00E]. Its value for expansion specifications can be set in two steps (DN codes [00F], [010]) during the normal operation and demand control (setting value DN Code [00E]).
<table>
<tr><td></td><td colspan="3">DN Code</td></tr>
<tr><td>Demand control</td><td>[00E]</td><td>[00F]</td><td>[010]</td></tr>
<tr><td>100%</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>95%</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>90%</td><td>2</td><td>2</td><td>2</td></tr>
<tr><td>85%</td><td>3</td><td>3</td><td>3</td></tr>
<tr><td>80%</td><td>4</td><td>4</td><td>4 (Factory default)</td></tr>
<tr><td>75%</td><td>5</td><td>5</td><td>5</td></tr>
<tr><td>70%</td><td>6</td><td>6</td><td>6</td></tr>
<tr><td>65%</td><td>7</td><td>7</td><td>7</td></tr>
<tr><td>60%</td><td>8</td><td>8 (Factory default)</td><td>8</td></tr>
<tr><td>55%</td><td>9</td><td>9</td><td>9</td></tr>
<tr><td>50%</td><td>10</td><td>10</td><td>10</td></tr>
<tr><td>–</td><td>11 to 14</td><td>11 to 14</td><td>11 to 14</td></tr>
<tr><td>0%</td><td>15 (Factory default)</td><td>15</td><td>15</td></tr>
</table></td><td>0015 : 0% (Forcedly stop)</td></tr>
<tr><td>00F</td><td>Setting value during Demand Control (Expansion 1)</td><td>0008 : 60%</td></tr>
<tr><td>010</td><td>Setting Value during Demand Control (Expansion 2)</td><td>0004 : 80%</td></tr>
</table>

DN	Item	Description		At shipment
012	Optional Output Setting Control 1 (CN514)	0000 : Compressor Operation Output	0001 : Operating Rate Output	0000 : Compressor Operation Output
018	Priority Operation Mode Setting	0000 : Priority heating 0002 : Priority operation unit No.	0001 : Priority cooling 0003 : Priority indoor unit	0000 : Priority heating
019	Outdoor Fan High Static Pressure Shift	0000 : Usual	0001 : High Static Pressure Operation	0000 : Usual
01A	Operation standby Heating standby	0000 : None	0001 : Standby	0000 : None
01d	System cooperation defrosting settings 1 (number cooperating)	0000 : None (vassal) 0002 : 2-system cooperation (master unit) * set [01D] = 0002 or 0003 to outdoor unit set to master unit in outdoor DN code [01F]	0001 : Prohibition 0003 : 3-system cooperation (master unit)	0000: None (vassal)
01E	System cooperation defrosting settings 2 (zone address)	0000 : None 0001 when not using central controller for control for system cooperation defrosting, 0001 to 0128 when using central controller	0001 to 0128: Addresses	0000: None
01F	System cooperation defrosting settings 3 (cooperation address)	0000: None 0002 or 0003: Vassal units 2 or 3	0001: Master unit	0000 : None
03F	Operation Control during Overflow Detection of Indoor Unit	0000 : System abnormal stop	0001 : System continuous operation (Stop the corresponding indoor unit.)	0000 : System abnormal stop
040	Operation Control during Outside Abnormal Input Switching control in receiving [L30][L02] from indoor)	0000 : System continuous operation (Stop the corresponding indoor unit.)	0001 : System abnormal stop	0000 : System continuous operation (Stop the corresponding indoor unit.)
082	Communication setting	0000: TCC-Link	0003 : TU2C-Link	0000: TCC-Link

6-2. Applied Control of Outdoor Unit

The outdoor fan high static pressure support and priority operation mode setting (cooling / heating / number of units / or priority indoor unit) functions are available by setting relevant switches provided on the interface P.C. board of the outdoor unit.

6-2-1. Outdoor Fan High Static Pressure Shift

Setup

Change the outdoor DN code. (O.DN [19]) into "Outdoor Fan High Static Pressure operation."
This function must be enabled with every discharge duct connected outdoor unit for both of the header and follower units.

Purpose/characteristics

Outdoor DN Code (O.DN) Setting Operation	Operation
O.DN [19] = 0000	Normal operation
O.DN [19] = 0001	Outdoor Fan High Static Pressure operation

Specifications

Increase the speed of the propeller fan units on the outdoor fan to allow the installation of a duct with a maximum external static pressure not greater than specified in the table below. If a discharge duct with a resistance greater than 15 Pa (1.5 mmAq) is to be used, enable this function. The maximum external static pressures of single units are shown below (Table 1). In the case of combined use of multiple outdoor units, set all the units to the same maximum external static pressure as the one with the lowest maximum external static pressure.

Table 1: Maximum External Static Pressures of Single Outdoor Units

Model	MMY-SUG	0801*	1001*	1201*	1401*	1601*
Maximum external static pressure	(Pa)	80	80	80	80	80
(*) Outdoor unit air flow	(m^3/min)	165	175	195	198	255
Model	MMY-SUG	1801*	2001*	2201*	2401*	
Maximum external static pressure	(Pa)	80	80	80	80	
(*) Outdoor unit air flow	(m^3/min)	280	275	280	280	

(*) Calculate duct resistance from outdoor unit air flow.

6-2-2. Priority Operation Mode Setting

Purpose/characteristics

This function allows switching between priority cooling and priority heating.
Four patterns of priority operation mode setting are available as shown in the table below. Select a suitable priority mode according to the needs of the customer.

Setup

⚠ CAUTION

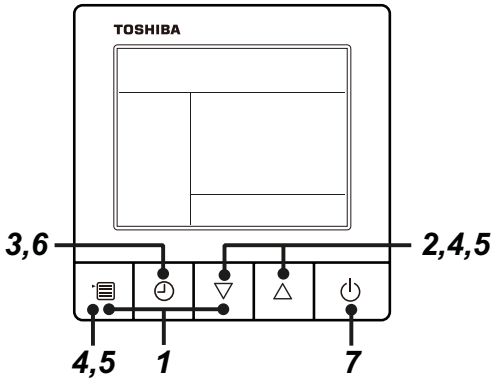
In the case of the priority indoor unit mode, it is necessary to set up the specific indoor unit chosen for priority operation (a single unit only).

(1) Outdoor unit setup method (header unit)

Outdoor DN Code (O.DN) Setting	Operation
O.DN [18] = 0000	Priority heating (factory default)
O.DN [18] = 0001	Priority cooling
O.DN [18] = 0002	Priority operation based on No. of units in operation (priority given to the operation mode with the largest share of units in operation)
O.DN [18] = 0003	Priority indoor unit (priority given to the operation mode of the specific indoor unit set up for priority operation)

(2) Indoor unit setup method for priority indoor unit mode
The setting can be changed only when the system is at rest. (Be sure to turn off the system prior to this operation.)

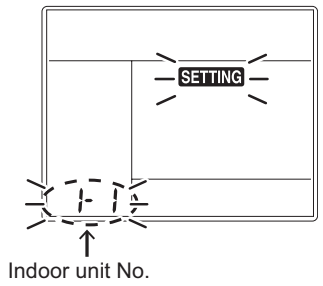
<RBC-ASCU11*>



Priority set 0001
No priority set 0000

1 Push and hold menu button and [▽] setting button simultaneously for 10 seconds or more.

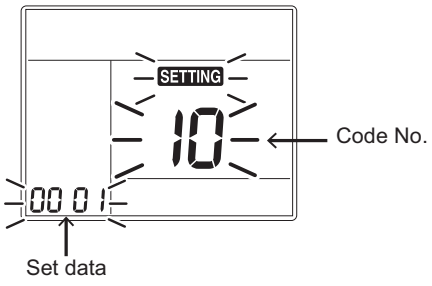
- After a while, the display flashes as shown in the figure. “ALL” is displayed as indoor unit numbers during initial communication immediately after the power has been turned on.



2 Each time [▽] [△] setting button is pushed, indoor unit numbers in the group control change cyclically. Select the indoor unit to change settings for.

- The fan of the selected indoor unit runs . The indoor unit can be confirmed for which to change settings.

3 Push OFF timer button to confirm the selected indoor unit.



4 Push the menu button to make Code No. [04] flash. Change Code No. [04] with [▽] [△] setting button.

5 Push the menu button to make Set data [0001] flash. Change Set data [0001] with [▽] [△] setting button.

Priority set 0001 No priority set 0000

6 Push OFF timer button to complete the set up.

- To change other settings of the selected indoor unit, repeat from Procedure ***4***.

7 When all the settings have been completed, push ON/OFF button to finish the settings. (Return to the normal mode)

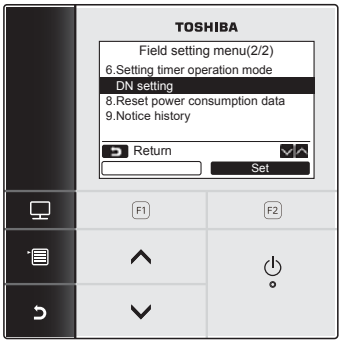
“ SETTING “ flashes and then the display content disappears and the air conditioner enters the normal stop mode. (The remote controller is unavailable while “ SETTING “ is flashing.)

- To change settings of another indoor unit, repeat from Procedure ***1***.

■ Wired remote controller (RBC-AMSU51*)

Perform the advanced settings for the air conditioner.
Carry out the setting operation while the indoor unit is stopped. (Turn off the air conditioning unit before starting the setting operation.)

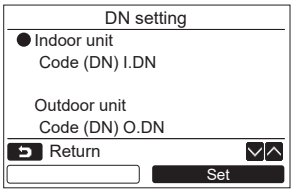
Display example of AMS*5*



1 **Push the [MENU] button to display the menu screen.**

2 **Push and hold the [MENU] button and the [∨] button at the same time to display the "Field setting menu".**
Push and hold the buttons for more than 4 seconds.

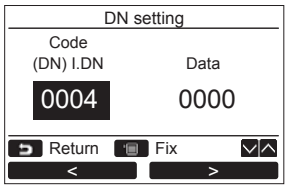
3 **Push the [∧] / [∨] button to select "7. DN setting" on the "Field setting menu" screen, then push the "Set" [F2] button.**
The fan and louver of the indoor unit operate. When the group control is used, the fan and louver of the selected indoor unit operate.

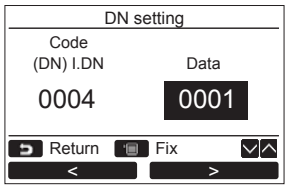


→Push the [∧] / [∨] button to select the indoor unit and push the "Set" [F2] button.

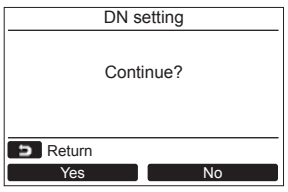
4 **Move the cursor to select "DN code" with the "<" [F1] button, then set "0004" with the [∧] / [∨] button.**

5 **Move the cursor to select "data" with the ">" [F2] button, then set "0001" with the [∧] / [∨] button.**





6 **Push the [MENU] button to set the other DN codes, then "Continue?" is displayed on the screen.**



7 **Push the "No" [F2] button to finish the setting operation. "⧖" appears on the screen for a while, then the screen returns to the "Field setting menu" screen.**
Pushing the "No" [F2] button displays the unit selection screen when the group control is used. Push the [CANCEL] button on the unit selection screen to finish the setting operation. "⧖" appears on the screen for a while, then the screen returns to the "Field setting menu" screen.

8 **Push the [CANCEL] button to return.**

6-2-3. Applied Control of Outdoor Unit

Optional control P.C. boards provide access to a range of functions as listed below.

No.	Function	Outdoor unit for control P.C. board Connection	Control P.C. board to be used			Outdoor unit interface P.C. board setting*			
			TCB-PCDM4E	TCB-PCMO4E	TCB-PCIN4E	Connector No.	DIP SW No.	Bit ON	Outdoor unit DN Code (O.DN)
1	Power peak-cut Control (Standard) *Limit a maximum capacity	Header unit	✓	—	—	CN513 (blue)	—	—	[009]=0 (Factory default)
	Power peak-cut Control (Standard) *Limit a maximum power	Header unit	✓	—	—	CN513 (blue)	—	—	[009]=1
	Power peak-cut Control (For one input function) *Limit a maximum capacity	Header unit	✓	—	—	CN513 (blue)	SW105	1	[009]=0 (Factory default)
	Power peak-cut Control (For one input function) *Limit a maximum power	Header unit	✓	—	—	CN513 (blue)	SW105	1	[009]=1
2	Power peak-cut Control (Enhanced Function) *Limit a maximum capacity	Header unit	✓	—	—	CN513 (blue)	SW105	2	[009]=0 (Factory default)
	Power peak-cut Control (Enhanced Function) *Limit a maximum power	Header unit	✓	—	—	CN513 (blue)	SW105	2	[009]=1
3	Snowfall Fan Control	Header unit	—	✓	—	CN509 (black)	—	—	—
4	External master ON/OFF Control	Header unit	—	✓	—	CN512 (blue)	—	—	—
5	Night operation (Sound reduction) Control	Header unit	—	✓	—	CN508 (red)	—	—	—
6	Operation Mode Selection Control	Header unit	—	✓	—	CN510 (white)	—	—	[008]=0 (Factory default)
	Operation Mode Selection Control (forced choice)	Header unit	—	✓	—	CN510 (white)	—	—	[008]=1
7	Trouble/Operation output	Header unit	—	—	✓	CN511 (green)	—	—	—
8	Compressor Operation Output	Individual outdoor unit	—	—	✓	CN514 (green)	—	—	[012]=0 (Factory default)
9	Operating Rate Output	Header unit	—	—	✓	CN514 (green)	—	—	[012]=1

To limit a maximum power, set the outdoor unit O.DN code to [009]=1, and set the criteria value of a maximum power consumption with O.DN code [00A], [00B], [00C] and [00D]. Input the values for both cooling and heating.
Outdoor unit DN Code (O.DN) [00C], [00D]
Criteria value setting for a maximum cooling power
(e.g.) When the maximum standard value of cooling power consumption is set as 19.35 kW = 19.35kW

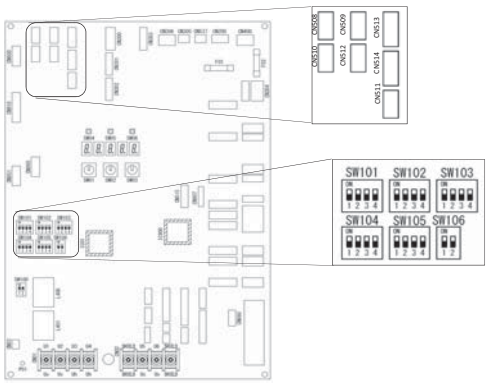
Outdoor unit DN Code (O.DN)	[00C]	[00D]
Value	19	35

Outdoor unit DN Code (O.DN) [00A], [00B]
Criteria value setting for a maximum heating power
(e.g.) When the maximum standard value of heating power consumption is set as 14.00 kW = 14.00kW

Outdoor unit DN Code (O.DN)	[00A]	[00B]
Value	14	00

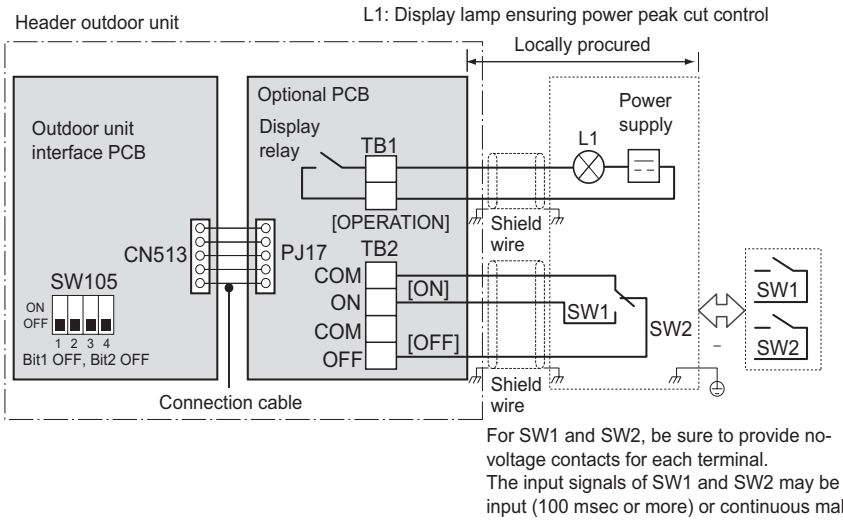
Layout of Outdoor Unit Interface P.C. Board

* For Applicable controls, switch the DIP SW on the P.C. board or set the outdoor unit O.DN.



6-2-3-1. Power peak-cut Control (Standard)

(1) Four-core cable support



Operation

The demand request signal from the outside restricts the maximum capability (or maximum electric power) of an outdoor unit.
L1: Power peak-cut control indication lamp SW1: Power peak-cut control ON switch (ON as long as target power peak-cut control has been reached or exceeded, normally OFF)*1
SW2: Power peak-cut control OFF switch (OFF as long as target power peak-cut control has not been reached or exceeded, normally ON)*1

*1 The inputs of SW1 and SW2 can be either pulse (100 msec or longer) or step signals.
Do not turn on SW1 and SW2 simultaneously.

* Be sure to provide a contact for each terminal.

Power peak-cut control settings

[2-stage switching] < SW105 bit1 OFF, bit2 OFF >

Demand: power peak-cut control

Control item	Optional P.C.board			Outdoor unit interface P.C.board			
	Input		Display relay	SW105		Outdoor unit DN Code [00E]	
	SW1	SW2	(L1)	Bit1	Bit2	Factory default [00E] = 15	[00E] = 0 to 10
Input demand OFF signal to release the demand	OFF	ON	OFF	OFF	OFF	100% (normal operation)	100% (normal operation)
Input demand ON signal to control the demand	ON	OFF	ON	OFF	OFF	0% (forced stop)	Approx. **X** (50% to 100%) (upper limit regulated)

* The upper limit **X**% can be regulated with the outdoor DN Code (O.DN) [00E].

Outdoor unit DN Code (O.DN) [00E]	X
0	100%
1	95%
2	90%
3	85%
4	80%
5	75%
6	70%
7	65%
8	60%
9	55%
10	50%
15 (factory default)	0% (forced stop)

Note 1: Specifications of display relay contact

- The terminal for display output ([Operation] terminal) must satisfy the following electrical rating.

<Electrical Rating>
220 to 240 VAC, 10 mA or more, 1 A or less
24 VDC, 10 mA or more, 1 A or less (non-conductive load)

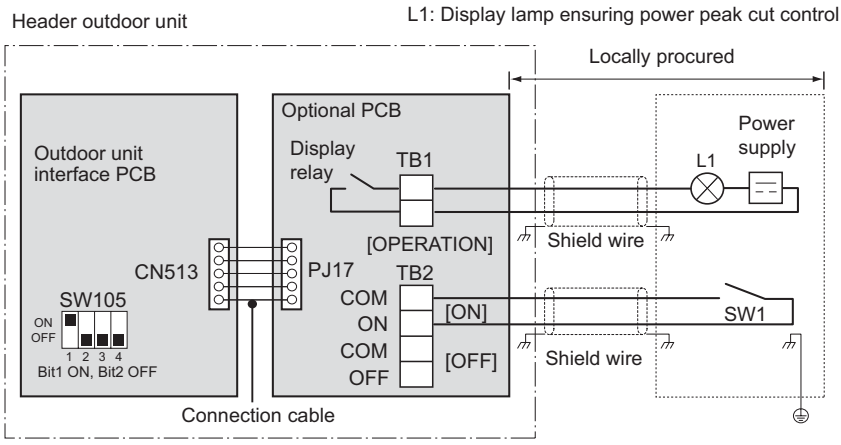
When connecting a conductive load (e.g. relay coil) to the display relay load, insert a surge killer CR (for an AC power supply) or a diode for preventing back electromotive force (for a DC power supply) on the bypass circuit.

Note 2: COM contact specifications

- COM terminals have DC12 V output with a basic insulation. Use a switch, such as a relay or photocoupler, insulated from a controller (locally procured) for CO (Change-Over) contact or NO (normally-open) contact.
- DC12 V has a current-limiting resistor of 3.3kΩ.
- For non-voltage contacts, use a relay with minimum applicable load of DC12V,3mA or less.

(2) Two-core cable support

Setting SW105 bit1 on I/F P.C.board of the header outdoor unit to ON allows ON/OFF power peak-cut control to be switched using [ON] terminal input (SW1) alone.



[2-stage switching] < SW105 bit1 ON, bit2 OFF >
Power peak-cut control turns ON when SW 1 in the wiring example is ON (continuous make).

Demand: power peak-cut control

Control item	Optional P.C.board		Outdoor unit interface P.C.board			
	Input	Display relay	SW105		Outdoor unit DN Code [00E]	
	SW1	(L1)	Bit1	Bit2	Factory default [00E] = 15	[00E] = 0 to 10
Input demand OFF signal to release the demand	OFF	OFF	ON	OFF	100% (normal operation)	100% (normal operation)
Input demand ON signal to control the demand	ON	ON			0% (forced stop)	Approx. **X** (50% to 100%) (upper limit regulated)

* The upper limit **X**% can be regulated with the outdoor DN Code (O.DN) [00E].

Outdoor unit DN Code (O.DN) [00E]	**X**
0	100%
1	95%
2	90%
3	85%
4	80%
5	75%
6	70%
7	65%
8	60%
9	55%
10	50%
15 (factory default)	0% (forced stop)

Note 1: Specifications of display relay contact

- The terminal for display output ([Operation] terminal) must satisfy the following electrical rating.

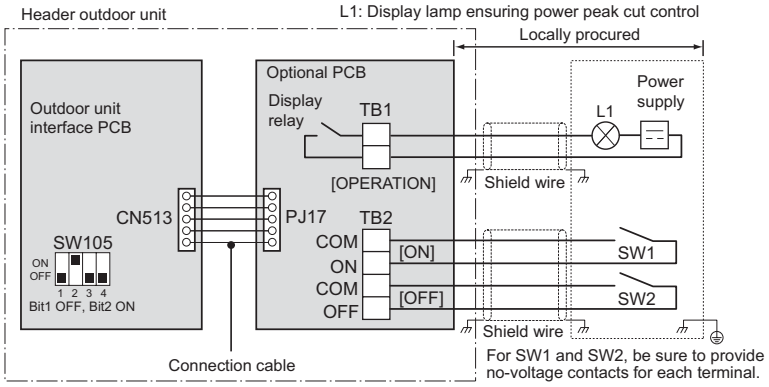
<Electrical Rating>
220 to 240 VAC, 10 mA or more, 1 A or less
24 VDC, 10 mA or more, 1 A or less (non-conductive load)

When connecting a conductive load (e.g. relay coil) to the display relay load, insert a surge killer CR (for an AC power supply) or a diode for preventing back electromotive force (for a DC power supply) on the bypass circuit.

Note 2: COM contact specifications

- COM terminals have DC12 V output with a basic insulation. Use a switch, such as a relay or photocoupler, insulated from a controller (locally procured) for CO (Change-Over) contact or NO (normally-open) contact.
- DC12 V has a current-limiting resistor of 3.3kΩ.
- For non-voltage contacts, use a relay with minimum applicable load of DC12V,3mA or less.

The optional P.C. board should be connected to the header outdoor unit (U1).



6-2-3-2. Power peak-cut Control (Extended)

Operation

The demand request signal from the outside restricts the maximum capability (or maximum electric power) of an outdoor unit.
L1: Power peak-cut control indication lamp
SW1: Power peak-cut control ON switch*1
SW2: Power peak-cut control OFF switch*1

*1 The inputs of SW1 and SW2 can be either pulse (100 msec or longer) or step signals.

* Be sure to provide a contact for each terminal.

Extended power peak-cut control settings

[4-stage switching] <SW105 Bit1 ON, Bit2 ON>

Demand: power peak-cut control

Control item	Optional P.C.board			Outdoor unit interface P.C.board			
	Input		Display relay	SW105		Outdoor DN Code [***]	
	SW1	SW2	(L1)	Bit1	Bit2	Factory default [00E] = 15, [00F] = 8, [010] = 4	[00E] = **X**, [00F] = **Y**, [010] = **Z**
Input demand OFF signal to release the demand	OFF	OFF	OFF	OFF	ON	100% (normal operation)	100% (normal operation)
Input demand ON signal to control the demand	ON	OFF	ON			Approx. 80% (upper limit regulated)	Approx. **Z**% (50% to 100%) (upper limit regulated)
Input demand ON signal to control the demand	OFF	ON	ON			Approx. 60% (upper limit regulated)	Approx. **Y**% (50% to 100%) (upper limit regulated)
Input demand ON signal to control the demand	ON	ON	ON			0% (forced stop)	Approx. **X**% (50% to 100%) (upper limit regulated)

*The upper limit **X**%, **Y**%, **Z**% can be regulated with the outdoor DN Code (O.DN) [00E] [00F] [010].

Outdoor unit DN Code (O.DN) [00E]	**X**
0	100%
1	95%
2	90%
3	85%
4	80%
5	75%
6	70%
7	65%
8	60%
9	55%
10	50%
15 (factory default)	0% (forced stop)

Outdoor unit DN Code (O.DN) [00F]	**Y**
0	100%
1	95%
2	90%
3	85%
4	80%
5	75%
6	70%
7	65%
8 (factory default)	60%
9	55%
10	50%
15	0% (forced stop)

Outdoor unit DN Code (O.DN) [010]	**Z**
0	100%
1	95%
2	90%
3	85%
4 (factory default)	80%
5	75%
6	70%
7	65%
8	60%
9	55%
10	50%
15	0% (forced stop)

Note 1: Specifications of display relay contact

- The terminal for display output ([Operation] terminal) must satisfy the following electrical rating.

<Electrical Rating>
220 to 240 VAC, 10 mA or more, 1 A or less
24 VDC, 10 mA or more, 1 A or less (non-conductive load)

When connecting a conductive load (e.g. relay coil) to the display relay load, insert a surge killer CR (for an AC power supply) or a diode for preventing back electromotive force (for a DC power supply) on the bypass circuit. The optional P.C. board should be connected to the header outdoor unit (U1).

Note 2: COM contact specifications

- COM terminals have DC12 V output with a basic insulation. Use a switch, such as a relay or photocoupler, insulated from a controller (locally procured) for CO (Change-Over) contact or NO (normally-open) contact.
- DC12 V has a current-limiting resistor of 3.3kΩ.
- For non-voltage contacts, use a relay with minimum applicable load of DC12V,3mA or less.

[Power peak-cut control through electric power]

For the Power peak-cut control, the Power peak-cut control through electric power can be set by Outdoor unit DN code (O.DN) [009].

The Power peak-cut control through electric power regulates outdoor unit output so that power consumption does not exceed the upper limit value set.

(1) To change into the power peak-cut control through power, set the outdoor unit DN code to [009] = 1.
* To return to the power peak-cut control through capacity, set the outdoor unit DN code to [009] = 0.

(2) Check that the criteria value of a maximum power in cooling or heating is set to [00A] to [00D].
For the connected outdoor units system, set the criteria value of a maximum power consumption (the total of each outdoor unit power) to the header outdoor unit.

Outdoor unit DN Code (O.DN) [00C], [00D]
Criteria value setting for a maximum cooling power
(e.g.) When the maximum standard value of cooling power consumption is set as 19.35 kW = 19.35kW

Outdoor unit DN Code (O.DN)	[00C]	[00D]
Value	19	35

Outdoor unit DN Code (O.DN) [00A], [00B]
Criteria value setting for a maximum heating power
(e.g.) When the maximum standard value of heating power consumption is set as 14.00 kW = 14.00kW

Outdoor unit DN Code (O.DN)	[00A]	[00B]
Value	14	00

(3) If ON signal is input from the optional P.C. board, the power peak-cut control through electric power operates.
Input method of ON signal for power peak-cut control is the same as that for normal peak-cut control. Refer to “Standard”, “For one input function”, or “Enhanced Function”.
The power peak-cut control regulates the outdoor unit capacity so that it does not exceed the upper limit value (X%,Y%,Z% of the criteria value for a maximum power set in (2)) set by [00E] [00F] [010] of (O.DN).
e.g.) If the criteria value of maximum heating power during 80% demand control is set to 14.00kW, the upper limit control becomes 11.2kW (14.00kW×80%=11.20kW), the outdoor unit output is controlled so that the power consumption does not exceed 11.20kW.

NOTE 1: To protect a refrigerant cycle, the power peak-cut may not be operated during the defrost operation, oil recovery operation, or refrigerant recovery operation.

NOTE 2: For demand OFF, the outdoor unit may operate beyond the setting criteria value of a maximum power consumption because the power limit control does not function.

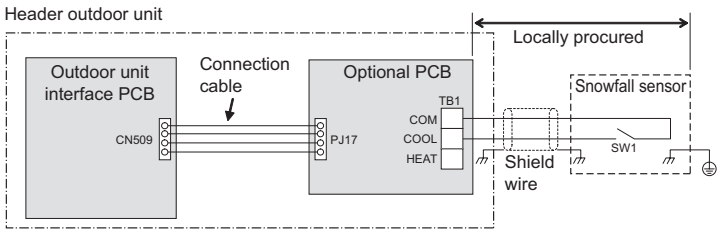
NOTE 3: Power consumption is estimated, causing approx. ±5 % difference from the actual power consumption.
To perform accurate power peak-cut control, use a demand controller and electric power meter.

NOTE 4: The power consumption of the indoor units is not included.

NOTE 5: When power consumption does not decrease or expected effects are not obtained, change the upper limit value of X%, Y%, Z% or the criteria value for a maximum power.

NOTE 6: In the case of Upper limit 100% (normal operation), the operation is without peak-cut control.
Peak-cut control is not performed with the value set to O.DN [00A] - [00D].

6-2-3-3. Snowfall Fan Control



SW1: Snowfall detection switch (snowfall sensor)

Operation

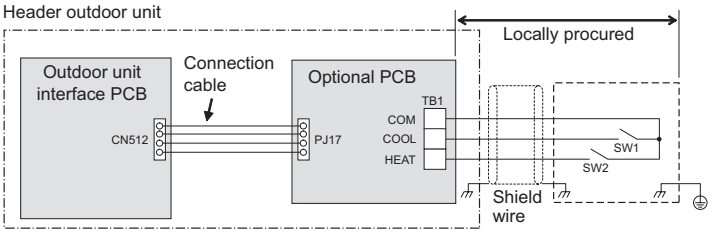
An external snowfall signal turns on the outdoor unit fan.

Terminal	Input signal	Operation
COOL (SW1)	ON → OFF	Snowfall fan control (Turn on outdoor unit fan)
	ON → OFF	Normal operation (Cancels control)

The input signal is recognized during its rising/falling phase.
(After reaching the top/bottom of the rising/falling edge, the signal must remain there for at least 100 ms.)
The optional P.C. board should be connected to the header outdoor unit (U1).

COM terminals have DC12 V output with a basic insulation. Use a switch, such as a relay or photocoupler, insulated from a controller (locally procured) for CO (Change-Over) contact or NO (normally-open) contact. DC12 V has a current-limiting resistor of 3.3kΩ.
For non-voltage contacts, use a relay with minimum applicable load of DC12V,3mA or less.

6-2-3-4. External master ON/OFF Control



SW1: Operation input switch
SW2: Stop input switch

Operation

The system is started/stopped from the outdoor unit.

Terminal	Input signal	Operation
COOL (SW1)	ON / OFF: 100ms; It does not matter whether the state is ON or OFF after 100 msec from the signal input. Batch-operation accepted. Turn SW1 OFF before sending	Turns on all indoor units
HEAT (SW2)	ON / OFF: 100ms; Batch-stop accepted. Batch-operation. Batch-stop	Turns off all indoor units

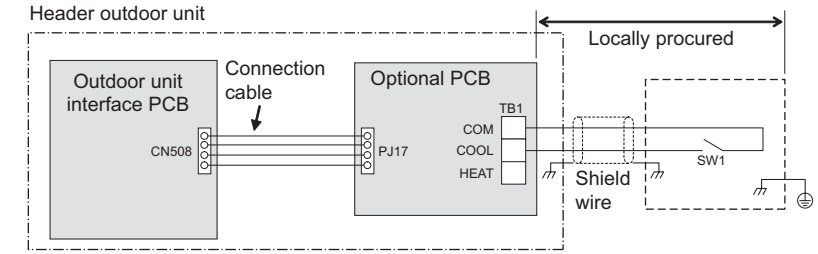
- Input signal is detected in the rising edge between OFF and ON of SW1/SW2 and the control is accepted in 100 msec from the edge.
- When COOL terminals (SW1 and SW2) are simultaneously turned ON, the control turned ON first is valid, and the control turned ON later is invalid.

⚠ CAUTION

(1) Do not turn on the COOL (SW1) and HEAT (SW2) terminals simultaneously.
(2) COM terminals have DC12 V output with a basic insulation. Use a switch, such as a relay or photocoupler, insulated from a controller (locally procured) for CO (Change-Over) contact or NO (normally-open) contact. DC12 V has a current-limiting resistor of 3.3kΩ.
For non-voltage contacts, use a relay with minimum applicable load of DC12V,3mA or less.

The optional P.C. board should be connected to the header outdoor unit (U1).

6-2-3-5. Night operation (sound reduction) Control



SW1: Night time signal switch

Operation

This function decreases noise at night or other times as necessary.

Terminal	Input signal	Operation
COOL (SW1)	ON → OFF	Night time control
	ON → OFF	Normal operation

The input signal is recognized during its rising/falling phase.
(After reaching the top/bottom of the rising/falling edge, the signal must remain there for at least 100 ms.)
The optional P.C. board should be connected to the header outdoor unit (U1).

The system's capacity is reduced during low-noise operation.
The table below provides a rough guide to this capacity reduction.

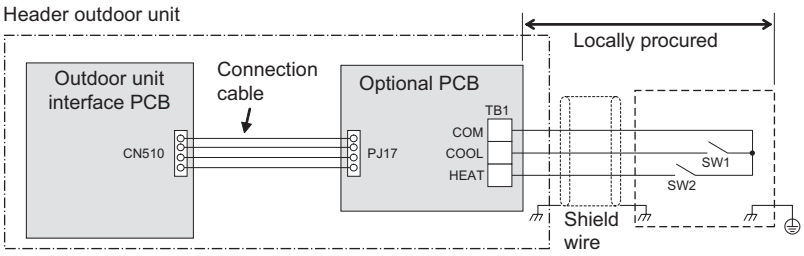
Model MMY-	Night operation sound reduction dB(A) (COOL/HEAT)	Capacity	
		COOL	HEAT
SUG0801*	50/50	Approx. 85%	Approx. 80%
SUG1001*	50/50	Approx. 70%	Approx. 65%
SUG1201*	50/50	Approx. 60%	Approx. 55%
SUG1401*	50/50	Approx. 70%	Approx. 65%
SUG1601*	53/53	Approx. 70%	Approx. 70%
SUG1801*	54/54	Approx. 65%	Approx. 65%
SUG2001*	53/54	Approx. 60%	Approx. 60%
SUG2201*	53/55	Approx. 55%	Approx. 55%
SUG2401*	53/55	Approx. 55%	Approx. 55%

Relative to maximum capacity

* Position of noise measuring device: 1 m from the front face of the set and 1.5 m above ground (anechoic sound)

- COM terminals have DC12 V output with a basic insulation.
  Use a switch, such as a relay or photo coupler, insulated from a controller (locally procured) for CO (Change-Over) contact or NO (normally-open) contact.
- DC12 V has a current-limiting resistor of 3.3kΩ.
- For non-voltage contacts, use a relay with minimum applicable load of DC12V,3mA or less.

6-2-3-6. Operation Mode Selection Control



SW1: Cooling mode specified input switch
SW2: Heating mode specified input switch

NOTE

SW1: COOL mode selection switch
SW2: HEAT mode selection switch

Input signal		Operation
COOL (SW1)	HEAT (SW2)	
OFF	OFF	Normal operation
ON	OFF	Only cooling operation allowed
OFF	ON	Only heating operation allowed

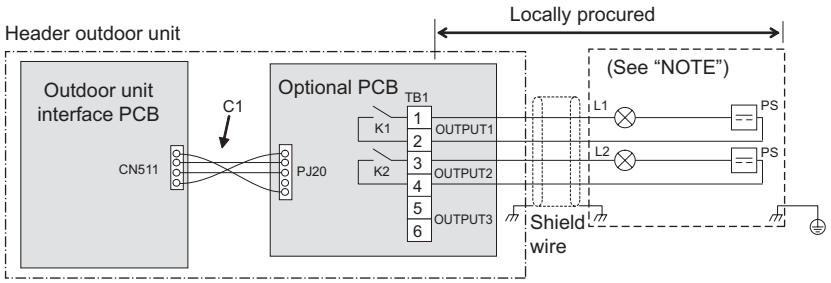
Indoor unit operation intervention function

The statuses of indoor units operating in a mode other than the selected operation mode can be switched by setting the outdoor DN Code of the header outdoor unit.
The optional P.C. board should be connected to the header outdoor unit (U1).

<table>
<tr><th>Outdoor DN Code (O.DN)</th><th>Details of Processing</th></tr>
<tr><td>O.DN [008] = 0 (factory default)</td><td>Unauthorized indoor units in a mode other than the P.C.board selection modes are not treated as priority (thermostat OFF state).
<table>
<tr><th rowspan="2">P.C. board selection mode</th><th colspan="2">Input Signal</th><th rowspan="2">Remote control</th><th rowspan="2">Operation State</th></tr>
<tr><th>COOL (SW1)</th><th>HEAT (SW2)</th></tr>
<tr><td rowspan="3">Normal</td><td rowspan="3">OFF</td><td rowspan="3">OFF</td><td>❄ or 💧</td><td rowspan="3">Follow the remote controller.</td></tr>
<tr><td>☀</td></tr>
<tr><td>🌀</td></tr>
<tr><td rowspan="3">Cooling operation only allowed</td><td rowspan="3">ON</td><td rowspan="3">OFF</td><td>❄ or 💧</td><td>Follow the remote controller (Normal cooling operation).</td></tr>
<tr><td>☀</td><td>Thermostat OFF (Air blow operation at super-slow blow rate)</td></tr>
<tr><td>🌀</td><td>Follow the remote controller (Normal air blow operation).</td></tr>
<tr><td rowspan="3">Heating operation only allowed</td><td rowspan="3">OFF</td><td rowspan="3">ON</td><td>❄ or 💧</td><td>Thermostat OFF (Air blow operation at blow rate set on remote control)</td></tr>
<tr><td>☀</td><td>Follow the remote controller (Normal heating operation).</td></tr>
<tr><td>🌀</td><td>Follow the remote controller (Normal air blow operation).</td></tr>
</table></td></tr>
<tr><td>O.DN [008]= 1</td><td>Only operation modes and air blow operation selected on the P.C.board can be selected on the remote controller.
When the input signal is turned ON, indoor units operated in a mode other than the P.C.board selection mode are forcibly switched to the P.C.board selection modes.
<table>
<tr><th rowspan="2">P.C. board selection mode</th><th colspan="2">Input Signal</th><th rowspan="2">Remote control</th></tr>
<tr><th>COOL (SW1)</th><th>HEAT (SW2)</th></tr>
<tr><td>Normal</td><td>OFF</td><td>OFF</td><td>❄, 💧, ☀ or 🌀 can be selected.</td></tr>
<tr><td>COOL</td><td>ON</td><td>OFF</td><td>• Only ❄ , 💧 or 🌀 can be selected.
• Indoor units in Heat mode are forcibly switched to the Cool mode.</td></tr>
<tr><td>HEAT</td><td>OFF</td><td>ON</td><td>• Only ☀ or 🌀 can be selected.
• Indoor units in Cool or Dry mode are forcibly switched to the Heat mode.</td></tr>
</table>
When using the remote control, (mode select control) indicator is displayed.</td></tr>
</table>

- COM terminals have DC12 V output with a basic insulation. Use a switch, such as a relay or photocoupler, insulated from a controller (locally procured) for CO (Change-Over) contact or NO (normally-open) contact.
- DC12 V has a current-limiting resistor of 3.3kΩ.
- For non-voltage contacts, use a relay with minimum applicable load of DC12V,3mA or less.

6-2-3-7. Trouble/Operation Output



Operation

In-operation output: An in-operation indication signal is output as long as at least one indoor unit is in operation in the line.
Trouble output: Trouble indication signal is output if trouble occurs in at least one indoor/outdoor unit in the line.

Note 1: Output Relay (K1, K2) Contact Specifications

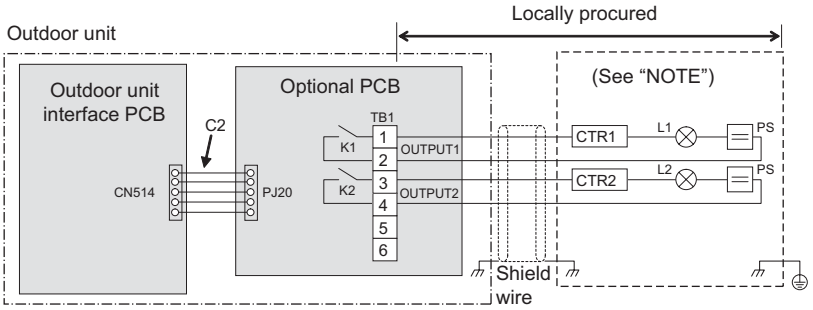
- Output terminals (OUTPUT1, 2) must satisfy the following electrical rating.
- When connecting a conductive load (e.g. relay coil) to loads K1 and K2, insert a surge killer CR (for an AC power supply) or a diode for preventing back electromotive force (for a DC power supply) on the bypass circuit.

<Electrical Rating>
220-240 VAC, 10 mA or more, 1A or less
24 VDC, 10 mA or more, 1 A or less (non-conductive load)

C1	Attached connection cable 1 (4wires)
CN511	Connector on interface side (green)
K1, K2	Relays
L1	Trouble indication Lamp
L2	Operation indication Lamp
OUTPUT1	Trouble output
OUTPUT2	Operation output
PJ20	Connector on optional P.C.board side
PS	Power supply unit
TB1	Terminal block

The optional P.C. board should be connected to the header outdoor unit (U1).

6-2-3-8. Compressor Operation Output



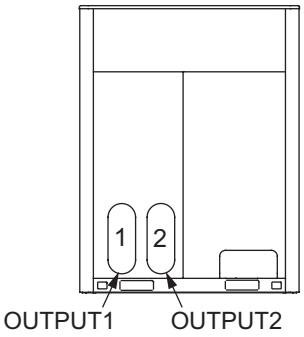
Operation

When a compressor is in operation, a relay connected to the output terminal assigned to it is turned on (closed). When it is at rest, the relay is turned off (open).
The output terminals are named OUTPUT1 and OUTPUT2 from left to right when facing the front of the outdoor unit, as shown in the diagram.

Note 1: Output Relay (K1, K2) Contact Specifications

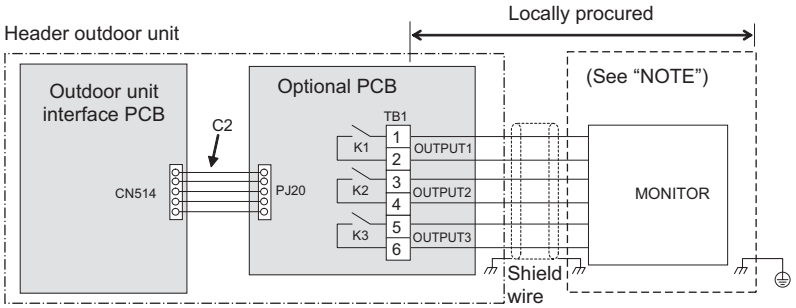
- Output terminals (OUTPUT1, 2) must satisfy the following electrical rating.
- When connecting a conductive load (e.g. relay coil) to loads K1and K2 insert a surge killer CR (for an AC power supply) or a diode for preventing back electromotive force (for a DC power supply) on the bypass circuit.

<Electrical Rating>
220-240 VAC, 10 mA or more, 1A or less
24 VDC, 10 mA or more, 1 A or less (non-conductive load)



C2	Connector cable 2 (2)
CN514	Connector on interface side (green)
CTR1	Elapsed operation counter 1
CTR2	Elapsed operation counter 2
K1, K2	Relays
L1, L2	Operation indication LEDs
OUTPUT1	Compressor 1 operation output terminal
OUTPUT2	Compressor 2 operation output terminal
PJ20	Connector on optional P.C.board side
PS	Power supply unit
TB1	Terminal block

6-2-3-9. Operating Rate Output



Operation

At the output terminals, a signal is present (relay closed) or absent (relay open) in various combinations according to the system operation factor, as shown in the diagram.

The operation rate (FA) is the percentage ratio of the current output of the system to the maximum output (100%).

Function	Outdoor DN Code [O.DN]	OUTPUT1	OUTPUT2	OUTPUT3	Operation rate (FA)
System operation rate output	O.DN [012] = 1	off	off	off	FA=0%
		on	off	off	0%<FA<20%
		off	on	off	20%≦FA<35%
		on	on	off	35%≦FA<50%
		off	off	on	50%≦FA<65%
		on	off	on	65%≦FA<80%
		off	on	on	80%≦FA<95%
		on	on	on	95%≦FA

off = Relay open
on = Relay closed

C2	Connector cable 2 (2)
CN514	Connector on interface side (green)
K1, K2, K3	Relays
MONITOR	Monitoring device
OUTPUT1	Output terminal for each function
OUTPUT2	Output terminal for each function
OUTPUT3	Output terminal for each function
PJ20	Connector on optional P.C.board side
TB1	Terminal block

* Connect the optional P.C. board to the header outdoor unit.

Note 1: Output Relay (K1, K2, K3) Contact Specifications

- Output terminals (OUTPUT1, 2, 3) must satisfy the following electrical rating.
- When connecting a conductive load (e.g. relay coil) to loads K1, K2 and K3, insert a surge killer CR (for an AC power supply) or a diode for preventing back electromotive force (for a DC power supply) on the bypass circuit.

<Electrical Rating>
220-240 VAC, 10 mA or more, 1A or less
24 VDC, 10 mA or more, 1 A or less (non-conductive load)

6-3. Notice Code

- Notice Code is a function only in TC2U-Link communication.
- When the outdoor or indoor unit detects its conditions requiring caution or maintenance, this function notices you to check your units with the spanner icon (Notice code icon) on the wired remote controller or central controller display.
- Even while the notice code icon is displayed, the air conditioner can operate normally.
- A maximum of five notice codes can be issued simultaneously in one system (line).

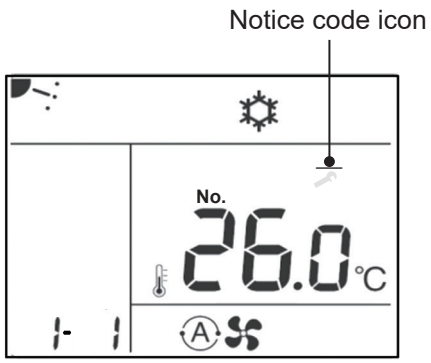
1. Notice Code Icon Display on Wired Remote Controller

Set the notice codes from remote controller so that the notice code mark is displayed on the remote controller display when the outdoor unit issues the notice codes.
Please follow the steps below to set the notice code on the unit.

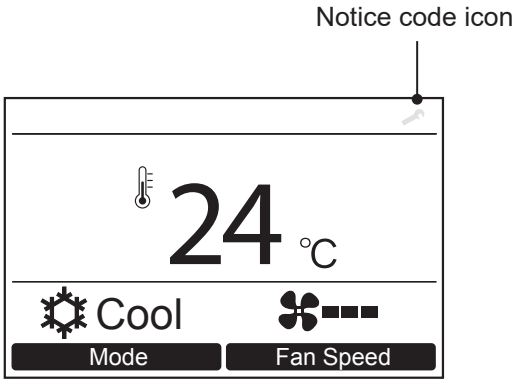
(1) Set the notice codes, which will be displayed, on the Indoor unit DN Code (I. DN) “180” to “189” from the remote controller.
Enter one of the notice codes for each DN Code. You can set it on any of “180” to “189”.
A maximum 10 types of the notice codes can be set on a single indoor unit.

(2) A notice code mark will be displayed on the remote controller when any of the 10 notice codes set is received into the remote controller.
If the notice code that is not set is received, a notice code icon is not displayed.
Set the notice code that you want from the remote controller.

<RBC-ASCU1*>



<RBC-ASMU5*>



2. Notice Code Display (7-segment display) on Outdoor Interface P.C. Board

The notice codes detected or issued from the outdoor unit can be confirmed with 7-segment display on the P.C. board.
(The notice codes detected or issued from the other outdoor unit cannot be displayed.)

(1) Displaying the notice code being issued now
Setting the SW01, SW02, SW03 to 1, 1, 14 respectively displays the notice code being issued from the outdoor unit on the 7-segment display 7-segment display [n. 1. . ***] *** : Notice code
Every time SW04 is pushed for 1-second, the display changes and the second notice code or each subsequent code is displayed (up to fifth code).
[n. 1. ***] (First) to [n. 2. ***] (Second) to • • • to [n. 5. ***] (Fifth) to [n. 1. ***] (First)

(2) Displaying the notice code history
Setting the SW01, SW02, SW03 to 1, 2, 14 respectively displays the notice code history being issued from the outdoor unit on the 7-segmen 7-segment display [h. 1. ***] *** : Notice code
Every time SW04 is pushed for 1-second, the display changes and the second notice code or each subsequent code is displayed (up to tenth code history).
[h. 1. ***] (First) to [h. 2. ***] (Second) • • • to [h. A. ***] (Tenth) to [h. 1. ***] (First)

(3) Clearing the notice code history
To clear the notice code history recorded in the outdoor unit, follow the steps below.
Set the SW01, SW02, SW03 to 2, 15, 8 respectively.
7-segment display [n. c]
When SW04 is pushed and held for 5-second, the notice code histories recorded in the outdoor unit are cleared.
7-segment display [n. c C L]

3. Notice Code List

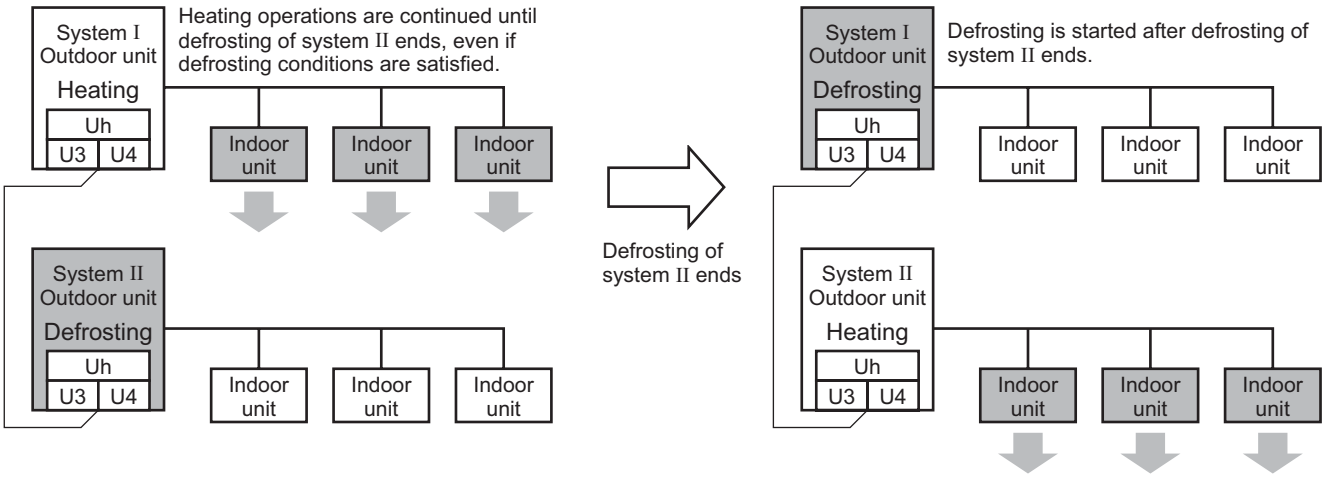
Notice code No.	Item	Content
001	Compressor maintenance timer over	This notice code is detected or issued from the outdoor unit when the actual operation cumulative time of comp.1 or comp.2 exceeds the compressor maintenance time set. The compressor maintenance time is not set at the factory. To use the notice code, set the compressor maintenance time* on O.DN"007".
022	NFC tag wiring trouble	This notice code is detected or issued from the outdoor unit when NFC tag is removed, failed, or cannot communicate with the outdoor interface P.C. board. The notice code stops when NFC tag communication recovers. (Note) A notice code [022] may be issued when connecting equipment to CN800 of the outdoor interface P.C. board, but this is not a faulty connection or a failure. Issuing of the notice code [022] will stop when the equipment is removed from the CN800 and the power of the outdoor unit is turned off. Determination of NFC tag failure should be performed in a state where no equipment is connected to the CN800.
203	Flow Selector unit battery dead	The battery kit connected to the Flow Selector unit has reached the end of its life.
204	Leak Detector life advance display	The Leak Detector will soon reach the end of its life.

* Setting the compressor maintenance time to detect the time exceeded
Enter the compressor maintenance time to be detected as time over into Outdoor unit DN Code (O.DN) “007”.
Input values ×1,000=Detection time
e.g. When O.DN [007]=20 is set
20 × 1,000=20,000 hours • • • The notice code “001” is detected and issued when the actual operation cumulative time of comp.1 or comp.2 will exceed 20,000 hours.

6-4. System Cooperation Defrosting

■ Overview

This is a function in which two systems or three systems of SHRM-A are communicably connected, and the timing of defrosting at each system is offset.
Installing an indoor device of a different system in the same room and performing system cooperation defrosting suppresses the room temperature from dropping while defrosting.
*When this setup is carried out, central remote controller cannot be connected.



■ Setup method

(1) Connect the header units of systems to perform system cooperation defrosting to each other by Uh (U3, U4) (Central control).
(2) SW100-bit1 (termination resistance of Uh line) of master outdoor unit is turned on.
(3) Do not set the same system addresses for each system that link defrosting.
For the system address, please refer to "7-4-3. Address Setup Procedure 2-2.Line (system) address setting.", and set with "automatic address setting" or "address setting by remote controller".
(4) Set the outdoor DN code (O.DN) [01D], [01E], [01F] to the header unit in each system by the following setup method. (Setting the outdoor DN code (O.DN) to follower unit is not necessary.)

1) Decide a master unit and vassal units from header units of each of the systems, and set the master unit to [01F] = 0001, and the vassal units to [01F] = 0002 or 0003.
2) Set the outdoor DN code [01E] of each header unit to 0001.
When using the central controller for system cooperation defrosting control, set to 0001 through 0128 in accordance with the manual for the central controller.
3) Set the number of systems performing defrosting cooperation (0002 or 0003) in the [01D] of the outdoor unit set to be the master unit.

Outdoor DN code	Item	Description	At shipment
01d	System cooperation defrosting settings 1 (number cooperating)	0000 : None (vassal) 0001 : Prohibition 0002 : 2-system cooperation (master unit) 0003 : 3-system cooperation (master unit) * set [01D] = 0002 or 0003 to outdoor unit set to master unit in outdoor DN code [01F]	0000: None (vassal)
01E	System cooperation defrosting settings 2 (zone address)	0000 : None 0001 to 0128: Addresses 0001 when not using central controller for control for system cooperation defrosting, 0001 to 0128 when using central controller	0000: None
01F	System cooperation defrosting settings 3 (cooperation address)	0000: None 0001: Master unit 0002 or 0003: Vassal units 2 or 3	0000: None

(5) Reset power supply of outdoor unit, and setup is complete.

<Wiring and setup examples>

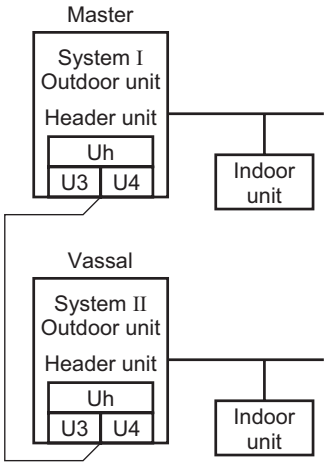
2-system setup

System I header unit

Outdoor DN code	Setting value
[01D]	2
[01E]	1
[01F]	1
SW100-bit1 = ON	

System II header unit

Outdoor DN code	Setting value
[01D]	0
[01E]	1
[01F]	2
SW100-bit1 = OFF	



3-system setup

System I header unit

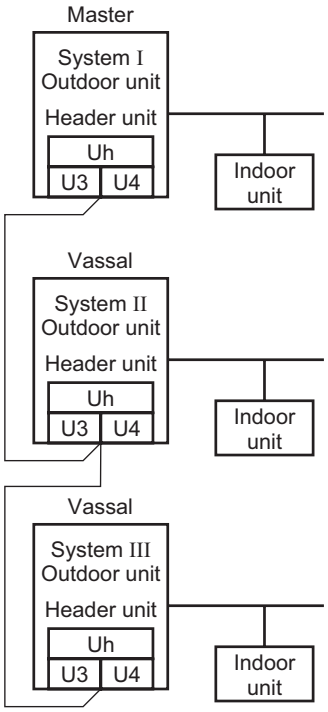
Outdoor DN code	Setting value
[01D]	3
[01E]	1
[01F]	1
SW100-bit1 = ON	

System II header unit

Outdoor DN code	Setting value
[01D]	0
[01E]	1
[01F]	2
SW100-bit1 = OFF	

System III header unit

Outdoor DN code	Setting value
[01D]	0
[01E]	1
[01F]	3
SW100-bit1 = OFF	



■ Operations (contents of control)

(1) Defrosting conditions for system cooperation defrosting (hereinafter referred to as “cooperation defrosting conditions”) are measured at each system, separately from normal defrosting conditions.
When multiple systems satisfy the cooperation defrosting conditions at the same time, the system that has satisfied the conditions earlier starts defrosting.

(2) When a system that has started defrosting earlier is still defrosting, other systems do not perform defrosting but continue heating operations.

(3) When defrosting of the system that started defrosting earlier ends, the system that has satisfied the cooperation defrosting conditions next starts defrosting.

(4) When only one system satisfies the cooperation defrosting conditions, that system continues heating operations, and performs defrosting at the point that normal defrosting conditions are satisfied.

(5) A system that has satisfied normal defrosting conditions starts defrosting to avoid the risk of remaining frost, even if system cooperation defrosting is being performed.

<Operation examples of system cooperation defrosting>

(Example 1) 2-system cooperation defrosting
In a case where cooperation defrosting conditions are satisfied in the order of system II and system I, defrosting is performed in the order of system II and system I.

System I	Heating	→	Heating *1	→	Defrosting *2	→	Heating
System II	Heating	→	Defrosting	→	Heating	→	Heating

*1 Continue heating without starting defrosting control while system II is defrosting
*2 Start defrosting after system II ends defrosting

(Example 2) 3-system cooperation defrosting
In a case where cooperation defrosting conditions are satisfied in the order of system II, system I and system III, defrosting is performed in the order satisfying conditions among the three systems.

System I	Heating	→	Heating *1	→	Defrosting *2	→	Heating	→	Heating
System II	Heating	→	Defrosting	→	Heating	→	Heating	→	Heating
System III	Heating	→	Heating *1	→	Heating *1	→	Defrosting *3	→	Heating

*1 Continue heating without starting defrosting control while system II is defrosting
*2 Start defrosting after system II ends defrosting
*3 Start defrosting after system I ends defrosting.

(Example 3) 2-system cooperation defrosting out of three systems
In a case where cooperation defrosting conditions are satisfied in the order of system II and system III, but system I does not satisfy conditions, system cooperation defrosting is performed by system II and system III alone.

System I	Heating	→	Heating	→	Heating	→	Heating
System II	Heating	→	Defrosting	→	Heating	→	Heating
System III	Heating	→	Heating *1	→	Defrosting *2	→	Heating

*1 During system II defrosting, don't start defrosting control but continue heating.
*2 The system II is a defrosting start after the end of defrosting

<Examples of not performing system cooperation defrosting>

(Example 4) Normal defrosting
In a case in where only system II satisfies defrosting conditions (system cooperation defrosting conditions and normal defrosting conditions), only system II performs defrosting.

System I	Heating	→	Heating	→	Heating
System II	Heating	→	Defrosting	→	Heating
System III	Heating	→	Heating	→	Heating

System I	Stop	→	Stop	→	Stop
System II	Heating	→	Defrosting	→	Heating
System III	Stop	→	Stop	→	Stop

(Example 5) Example of not performing system cooperation defrosting
In a case where normal defrosting conditions are satisfied due to sudden increase in frost or the like, defrosting is started to avoid the risk of remaining frost, even if other systems are performing system cooperation defrosting.

System I	Heating	→	Heating *1	→	Defrosting *2		→	Heating
System II	Heating	→	Defrosting		→	Heating	→	Heating

*1 State where heating operations are continuing while system II is performing cooperation defrosting
*2 If normal defrosting conditions are satisfied, defrosting is started without awaiting system II to end defrosting.

6-5. Night operation (Sound reduction control)

■ Overview

·The 'Night operation' function of RBC-AMSU5* remote control can be used with SHRM-A. It reduces the sound of outdoor unit putting priority on quietness during night time operation, etc., and the operation time can be set.

■ Setup method



1 **Push the [MENU] button.**

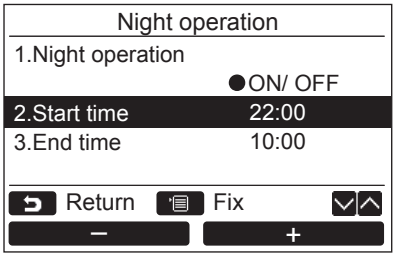
2 **Push the [∧] / [∨] button to select "6.Night operation" on the menu screen, then push the "Set Set" [F2 F2] button.**

3 **Push the [∧] / [∨] button to select "1.Night operation" on the "Night operation" screen.**

4 **Push the "←● ←●" [F1 F1] / "●→ ●→" [F2 F2] button to select "ON" or "OFF".**
→Select "ON" when the function is used.

5 **Push the [MENU] button.**
→Push the [∧] / [∨] button to select "2.Start time" or "3.End time" for setting the Night operation time

To set the Night operation time



* Adjust the clock before setting the Night operation.

1 **Push the [∧] / [∨] button to select "2.Start time" on the "Night operation" screen.**

2 **Push the "– -" [F1 F1] / "+ +" [F2 F2] button to set the time.**

3 **Push the [∧] / [∨] button to select "3.End time".**

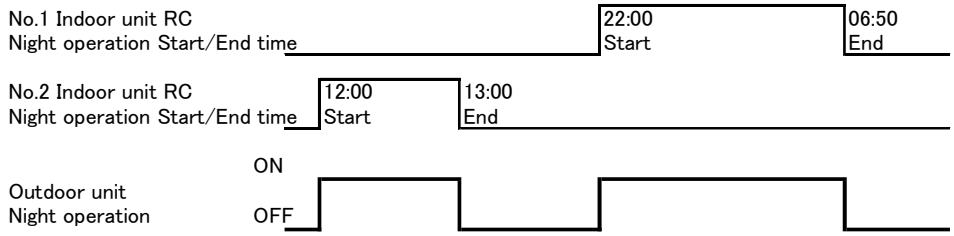
4 **Push the "– -" [F1 F1] / "+ +" [F2 F2] button to set the time.**

5 **Push the [MENU] button.**
→The screen returns to the menu screen.

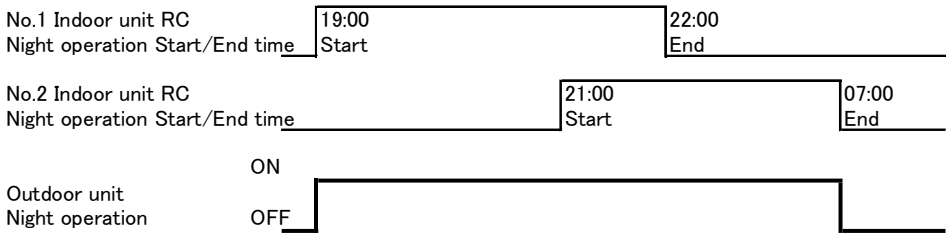
■ Control outline

- During the 'Outdoor unit sound reduction' control, the outdoor unit operates in the same way as in the 'Night operation Control' with optional control P.C.board. For the operation of outdoor unit during 'Night operation Control', please refer to '6-6-3-5. Night operation (sound reduction) Control'.
- Cooling / heating performance may be reduced a little because the operation priority is put on the quietness for the Night operation.
- " $^{z}z_{z}$ " appears on the detailed display when the Night operation is activated.
- The Night operation cannot be set on the Follower remote controller in the two remote controller system. " ⃠ No function" is displayed on the screen.
- The 24-hour operation of Night operation is performed when the end time is the same as the start time.
- After setting, the 'Night operation Control' operates according to the start time and the end time, even when the remote control is off.

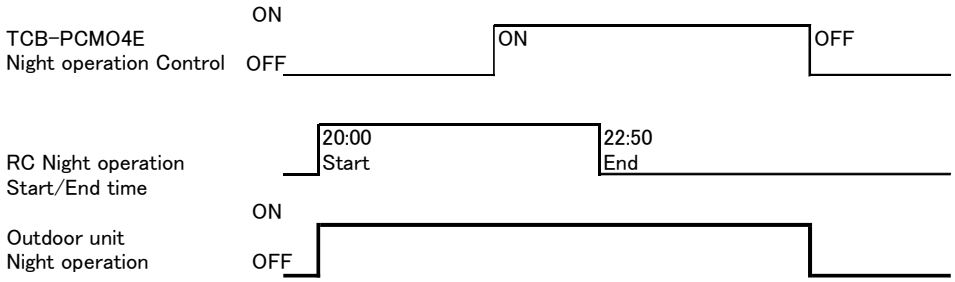
・ The 'Night operation can be set by a number of remote controls. It operates according to the start time and the end time set by each remote controls.



・ If the 'Night operation' time set by a number of remote controls overlaps, it starts at the start time set by any one of the remote controls, and ends when all remote controls reach the end time.



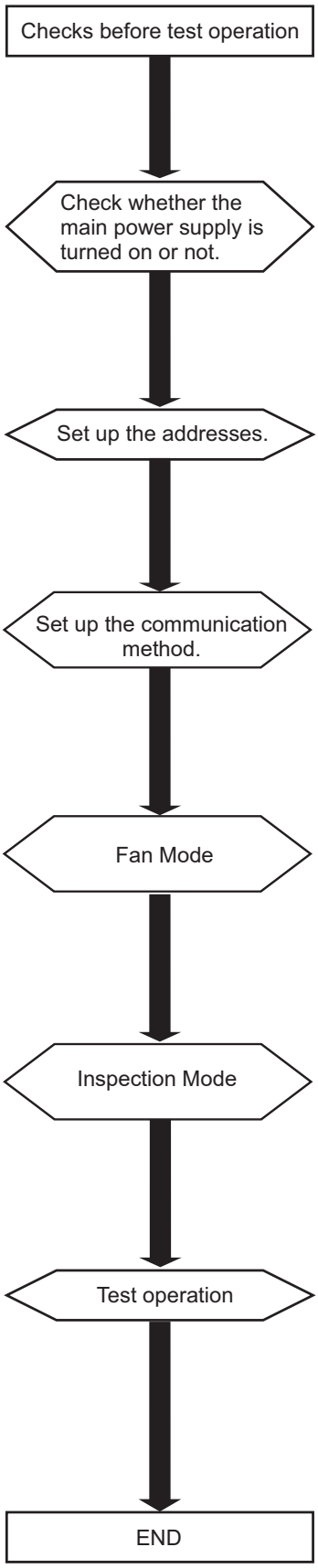
・ The 'Night operation' with remote controls, and the 'Night Operation Control' with optional control P.C.board (TCB-PCMO4E) connected to the outdoor unit, can be used together. The outdoor unit operates in 'Night Operation' when either control is effective.



7. TEST OPERATION

7-1. Procedure and Summary of Test Operation

A test operation is carried out with the following procedure. When problems or a trouble occurs at any step, remove the causes of the problem or trouble referring to “8 TROUBLESHOOTING.”



Check basic items, mainly the installation work.
Be sure to enter the check results in checklist 1 and 2.

This check is done after the power has been turned on.
Check that the refrigerant circuit system is turned on normally.

Start the address setup in the outdoor/indoor units.
Note: Operation does not start simply by powering-on.

A communication method is set up.
Note: Do not perform this setup before an indoor unit address setup.

Carry out Fan mode. Check whether there is air blowing out of indoor unit.

If there is at least 1 Flow Selector unit or Shut off Valve, carry out detailed inspection mode to look for existing miswiring and incorrect setup.

Carry out a test operation. Check air blowing and cooling/heating operation in the indoor unit.

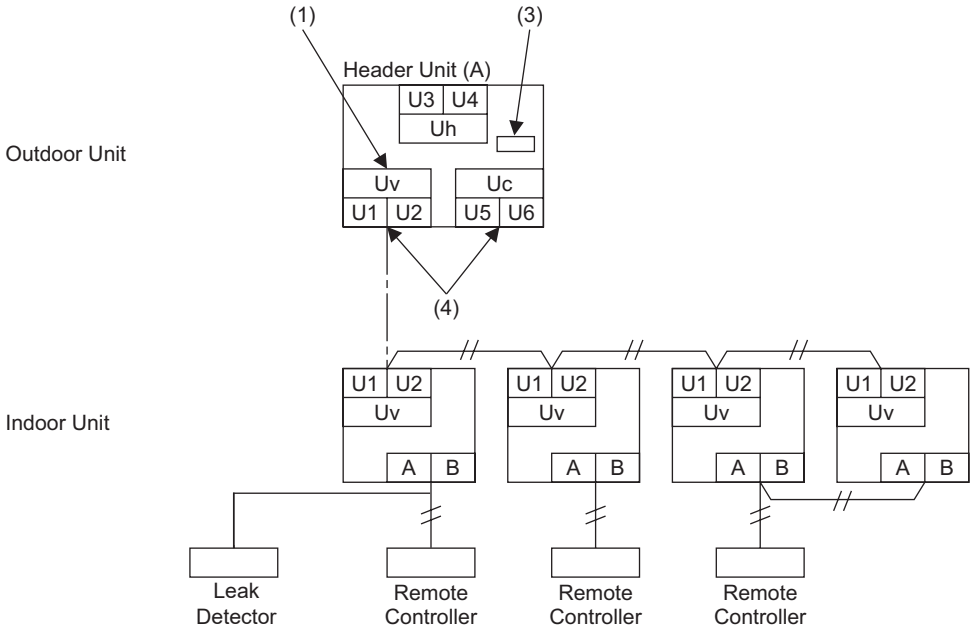
7-2. Check Items before Test Operation (before powering-on)

Prior to the test operation, check the following items to verify there are no problems with the installation work.

Main check items for electric wiring

The communication system differs from previous period model air conditioners.
Check wiring points again carefully.

(1) In the case that a central control system is not connected:

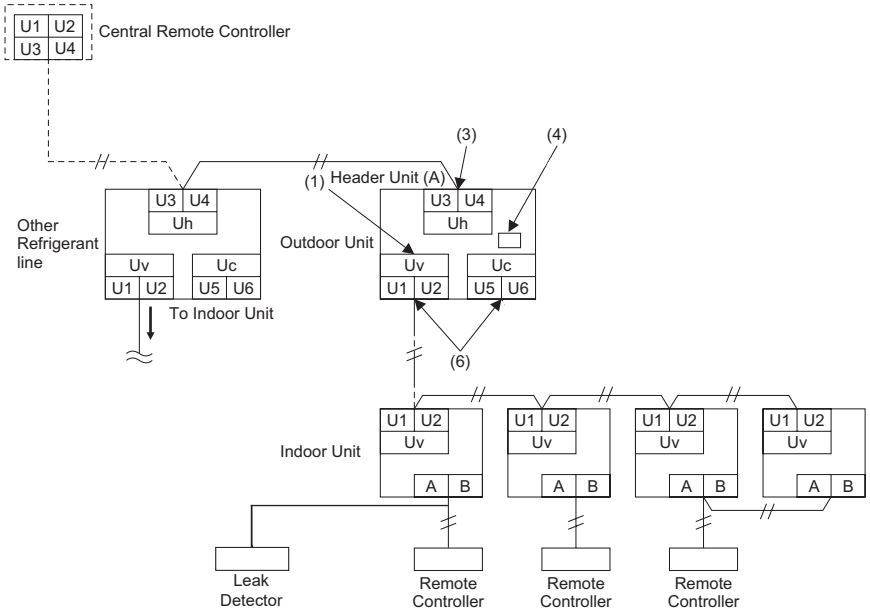


Main check items	Check
(1) Are the indoor and outdoor communication lines of the header connected to the U1/U2 (Uv) terminals?	
(2) Is the header unit setting (SW101-bit 1) turned on? Is the terminator resistor (SW100-bit 2) on the interface PC board of the header unit turned on?	
(3) Is the Heat Recovery/Heat Pump setting (SW104-bit 1) in the right position? OFF for Heat Recovery ON for Heat Pump	
(4) Is the end terminal of the shield wire earthed?	

NOTE

The figure above does not show all the electric wires.
For details, refer to the installation manuals for the outdoor unit, indoor unit, remote controller, or optional devices.

(2) In the case that a central control system is connected (before address setup)

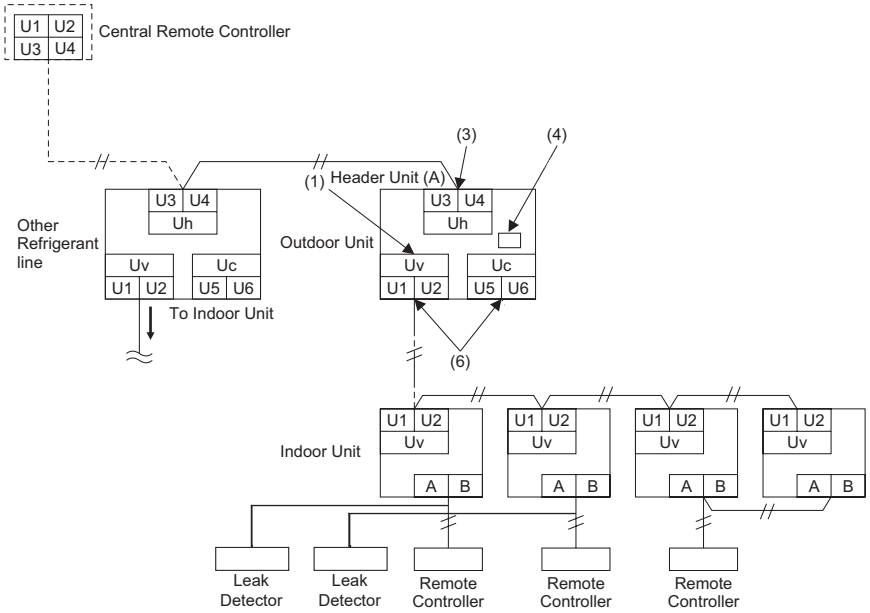


Main check items	Check
(1) Are the indoor and outdoor communication lines of the header unit connected to the U1/U2 (Uv) terminals?	
(2) Is the communication line of the central control system connected to the header unit U3/U4 (Uh) terminals of each refrigerant line? (The communication line of the central control system may be connected to the communication lines of the indoor / outdoor communication lines.)	
(3) Is the header unit setting (SW101-bit 1) turned on? Is the term resistor (SW100-bit 2) on the interface PC board of the header until turned on?	
(4) Is the Heat Recovery / Heat Pump setting (SW104-bit 1) in the right position? OFF Heart Recovery ON for Heat Pump	
(5) Is the end terminal of the shield wire earthed?	

NOTE

The figure above does not show all the electric wires.
For details, refer to the installation manuals for the outdoor unit, indoor unit, remote controller, or optional devices.

(2) In the case that a central control system is connected (before address setup)



Main check items	Check
(1) Are the indoor and outdoor communication lines of the header connected to the U1/U2 (Uv) terminals?	
(2) Is the communication line between Indoor unit and FS unit or Shut off Valve connect to the CN81 terminals?	

NOTE

The figure above does not show all the electric wires.
For details, refer to the installation manuals for the outdoor unit, indoor unit, remote controller, or optional devices.

Check list 1

• Using Checklist 1, check that there are no problems with the installation work.

Is the capacity of the circuit breaker (Earth leakage breaker) appropriate?	Outdoor total capacity ☐ A	Header unit (A) ☐ A	Indoor unit ☐ A
Is the gauge of the power cable correct?		Header unit (A) ☐ mm^2	Indoor unit ☐ mm^2
Is the control communication line correct?		Indoor-outdoor connection terminals (U1, U2) ☐ Central control system connection terminals (U3, U4) ☐	
Is the power of indoor units supplied collectively?			
Is it grounded to earth?			
Is the resistance sufficient? (10 MΩ or higher)		☐ MΩ or higher	
Is the main power voltage sufficient? (within 380-415V ±10%)		☐ V	
Is the diameter of connecting pipe correct?			
Is the branch kit correct?			
Is the water drain of the indoor unit arranged so that it flows without accumulation?			
Is the heat insulation of pipes sufficient? (connecting pipes, branch kit)			
Is there no short circuit of discharge air in the indoor/outdoor units?			
After an airtightness test of the pipes, are vacuuming and adding of refrigerant executed?			
Are the valves of all the outdoor units fully opened?		Gas side Header unit (A) ☐	Liquid side ☐

• Check the additional amount of refrigerant.

Checklist 2

Calculate total additional amount refrigerant from the compensation amount of refrigerant according to total outdoor unit horsepower (A), the additional amount of refrigerant by the pipe diameter on the liquid side and the pipe length (B),the compensation amount of refrigerant according to indoor unit horsepower (C), and the total compensation amount of refrigerant according to the system diversity (D)

Additional amount of refrigerant = Compensation amount of refrigerant according to total outdoor unit horsepower (A) + Actual liquid pipe length × Additional amount of refrigerant per 1 m of liquid pipe (B) + Compensation amount of refrigerant according to indoor unit horsepower (C) + Compensation amount of refrigerant according to the system diversity (D)

First, refer to following table below, calculate the compensation amount of refrigerant according to total outdoor unit horsepower (A)

<Compensation amount of refrigerant according to total outdoor unit horsepower (A)>

System HP	Compensation by System HP (kg)
8	0.5
10	0.7
12	1.2
14	1.2
16	-0.3
18	0.6
20	1.2
22	1.4
24	1.6

Next, enter the total length for each liquid pipe diameter in the following table, and then calculate the additional amount of refrigerant by pipe length.

<Additional amount of refrigerant by pipe length (B)>

Pipe diameter on the liquid side mm	Standard amount of refrigerant kg/m Heat recovery	Total pipe length on each liquid side m	Total pipe length on each liquid side kg
6.4	0.025 ×	=	kg
9.5	0.055 ×	=	kg
12.7	0.105 ×	=	kg
15.9	0.160 ×	=	kg

Pipe diameter on the liquid side mm	Standard amount of refrigerant kg/m Heat pump	Total pipe length on each liquid side m	Total pipe length on each liquid side kg
6.4	0.024 ×	=	kg
9.5	0.052 ×	=	kg
12.7	0.100 ×	=	kg
15.9	0.152 ×	=	kg

Then refer to following table below, calculate corrective amount of refrigerant according to indoor unit horsepower (C).

<Corrective amount of refrigerant according to indoor unit horsepower (C)>

<According to indoor unit horsepower (Not include "DX coil interface")>

Indoor unit capacity rank	Capacity code (Equivalent to HP) HP	Corrective amount of refrigerant kg	Number of connected indoor units Number	Corrective amount of refrigerant on each indoor unit horsepower kg
003	0.3	0.2 ×		= kg
005	0.6			= kg
007	0.8			= kg
008	0.9			= kg
009	1			= kg
010	1.1			= kg
012	1.25			= kg
014	1.5			= kg
015	1.7	0.4 ×		= kg
018	2			= kg
020	2.25			= kg
024	2.5			= kg
027	3			= kg
030	3.2			= kg
036	4	0.6 ×		= kg
048	5			= kg
056	6			= kg
072	8	1.0 ×		= kg
096	10			= kg

- If the Fresh Air Intake Indoor Unit (MMD-UP****HFP*) is connected, the corrective amount of refrigerant for Fresh Air Intake Unit is 0 kg.

<According to indoor unit horsepower for Hot Water Module (HWM)>

Indoor Unit Capacity HP	Corrective amount of refrigerant kg	Number of connected indoor units Number	Corrective amount of refrigerant on each indoor unit horsepower kg
2.5	0.2		= kg
5			= kg

<According to indoor unit horsepower for Fresh Air Intake)>

Corrective amount of refrigerant: 0 kg

<According to indoor unit horsepower for High Efficiency 4-Way Cassette (MMU-UP∗∗∗∗H∗)>

Indoor Unit Capacity HP	Corrective amount of refrigerant kg	Number of connected indoor units Number	Corrective amount of refrigerant on each indoor unit horsepower kg
1	0.2		= kg
1.3			= kg
1.7	0.6		= kg
2			= kg
2.5			= kg
3			= kg
3.2			= kg
4			= kg
5			= kg
6			= kg

Next, refer to the following table below, calculate the corrective amount of refrigerant according to system diversity (D)

Corrective amount of refrigerant varies according to the system diversity (D)

Diversity D(%)	Corrective amount of refrigerant (kg)
50% ≤ D < 60%	-2.5
60% ≤ D < 70%	-2.0
70% ≤ D < 80%	-1.5
80% ≤ D < 90%	-1.0
90% ≤ D < 95%	-0.5
95% ≤ D	0

Lastly, add the corrective amount of refrigerant according to system diversity (D), the corrective amount of refrigerant according to indoor unit horsepower(C) and the additional amount of refrigerant by the pipe diameter on liquid side and the pipe length (B) to the compensation amount of refrigerant according to total outdoor unit horsepower (A)

This is the final additional amount of refrigerant.

If a minus sign is indicated as the result, the additional amount of refrigerant is zero (0) kg, do not reduce the refrigerant.

Compensation amount of refrigerant according to total outdoor unit horsepower (A)	kg
Additional amount of refrigerant by pipe length (B)	kg
Corrective amount of refrigerant according to indoor unit horsepower (C)	kg
Corrective amount of refrigerant according to system diversity (D)	kg
Total additional amount of refrigerant	kg

7-3. Check at Main Power-on

After turning on the main power of the indoor units and outdoor unit in the refrigerant line to conduct a test operation, check the following items in each outdoor and indoor unit.
(After turning on the main power, be sure to check in order: indoor unit outdoor unit.)

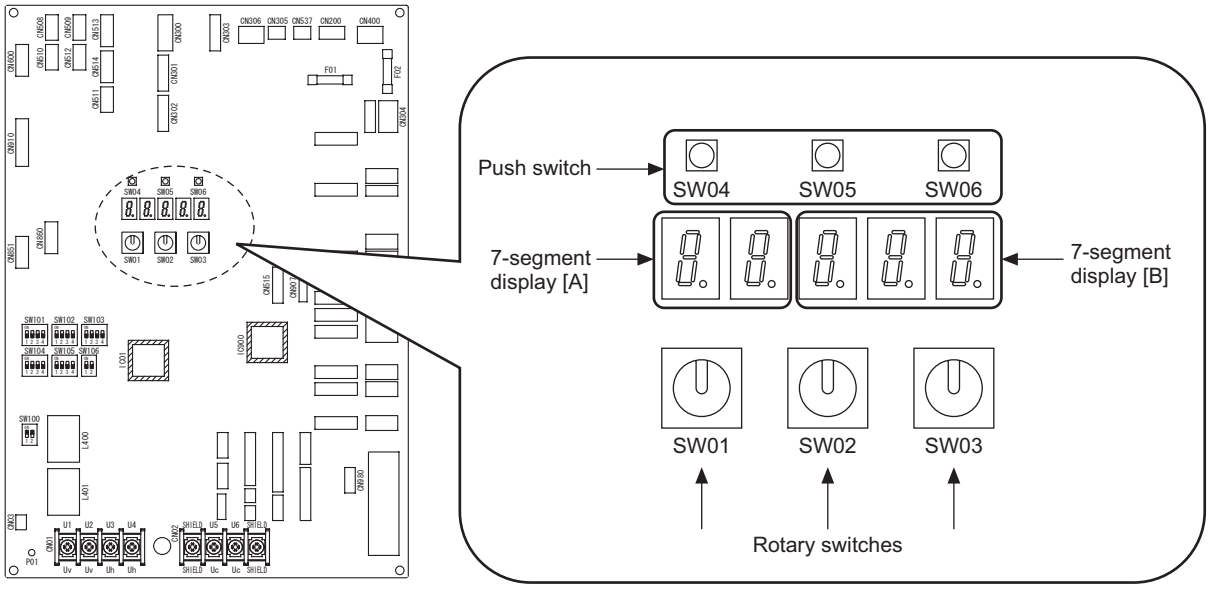
<Check on the outdoor unit>

(1) Check that all the rotary switches, SW01, SW02, and SW03, on the interface PC board of the header unit are set to "1."

(2) If another check code is displayed on the 7-segment display [B], remove the cause of the problem referring to Section, "8. TROUBLESHOOTING".

(3) Check that "L08" is displayed on the 7-segment display [B] on the interface PC board of the header unit.
(L08: Indoor address not set up)
(If the address setup operation has already been completed during servicing, etc., the above check code is not displayed, and only "U1" is displayed on the 7-segment display [A].)

Interface P.C. board

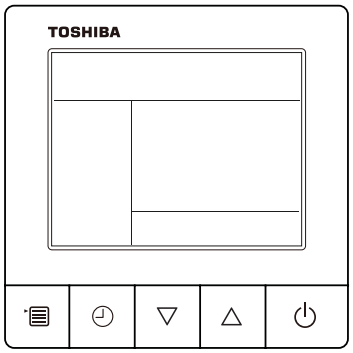


<Check on the indoor unit>

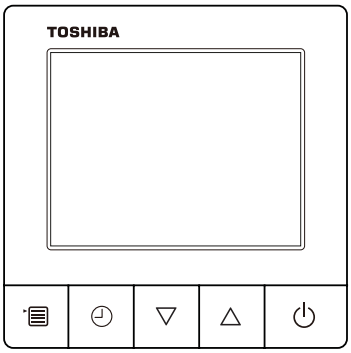
(1) Display check on the remote controller (in the case of a wired remote controller)
Check that a frame, as shown in the following figure at left, is displayed on the LC display section of the remote controller.

<RBC-ASCU11*>

✓ **Correct**



Incorrect



If no frame is displayed, as shown in the above figure at right, the remote controller does not have a normal supply of power; check the following items.

- Check the power supply of the indoor unit.
- Check the cabling between the indoor unit and the remote controller.
- Check whether there is a cutoff of wire around the indoor control PC board or not, and check for connection failures of the connectors.
- Check for failure of the transformer for the indoor electrical control box.
- Check for failure of the indoor control PC board.

7-4. Address Setup

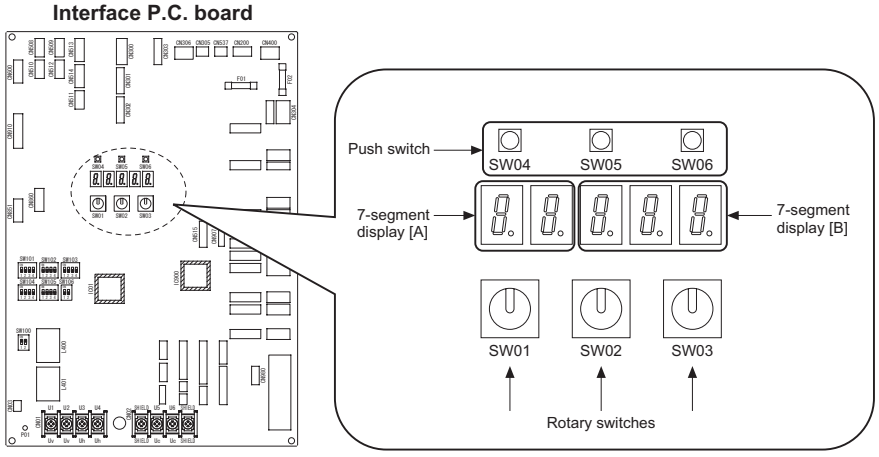
This product requires address setup before operation.
Follow this procedure for address setup.

7-4-1. Precautions

(1) Address setup is not performed simply by turning on the power supply.
(2) For indoor units, address setup can be done either by manual address setup or by automatic address setup: Automatic address setup: Setup from SW06 on the interface P.C. board of the header unit Manual address setup: Setup from the wired remote controller. (For details, refer to "7-4-3. Address Setup Procedure.")
(3) Automatic setup usually takes about 5 minutes per line. In some cases, however, it may take up to 10 minutes.
(4) It is unnecessary to operate the air conditioner to achieve address setup.

7-4-2. Address Setup and Check Procedure

<table>
<tr><th>Procedure</th><th>Item</th><th>Operation and check contents</th></tr>
<tr><td>1</td><td>Header outdoor unit setting</td><td>Turn on DIP switch 1 of SW101 on the header outdoor unit interface P.C.boards.
And, turn on DIP switch 2 of SW100.</td></tr>
<tr><td>2</td><td>Indoor unit power-on</td><td>Turn on the power of the indoor unit for the refrigerant line for which the address is to be set up.</td></tr>
<tr><td>3</td><td>Outdoor unit power-on</td><td>Turn on the power of all the outdoor units for the refrigerant line for which the address is to be set up.</td></tr>
<tr><td>4</td><td>7-segment display check</td><td>Check that "L08" is displayed on the 7-segment display [B] on the interface PC board of the header unit in the system where the address is to be set up.</td></tr>
<tr><td>5</td><td>Address setup start</td><td>Confirm the items in "7-4-3. Address Setup Procedure," and then set up the address according to the operation procedure.
(Be careful to note that the setup operation may differ in group control and central control systems.)
Note:
The address cannot be set up if switches are not operated.</td></tr>
<tr><td>6</td><td>Display check after setup</td><td>• After address setup, "U1" " " is displayed on the 7-segment display.
• If a check code is displayed on the 7-segment display [B], remove the cause of the problem referring to "8 TROUBLESHOOTING."</td></tr>
<tr><td>7</td><td>Communication setting start</td><td>Confirm the items in "7-4-3. Address Setup Procedure," and then set up the communication according to the operation procedure.
Note:
The address cannot be set up if switches are not operated.</td></tr>
<tr><td>8</td><td>Display check after communication setup</td><td>• After communication setup, "c.c." "Fin" is displayed on the 7-segment display.
• If a unit that has already been set for communication is connected, it cannot be set correctly. In this case, clear the communication settings and set again.</td></tr>
<tr><td>9</td><td>System information check after setup</td><td>Using the 7-segment display function, check the system information of the scheduled system.
(This check is executed on the interface PC board of the header unit.)
<table>
<tr><th></th><th colspan="3">Rotary switch setup</th><th colspan="2">7-segment display</th></tr>
<tr><td></td><td>SW01</td><td>SW02</td><td>SW03</td><td>[A]</td><td>[B]</td></tr>
<tr><td>System capacity</td><td>1</td><td>2</td><td>3</td><td>[Number of horsepower]</td><td>[H P]</td></tr>
<tr><td>Number of connected indoor units</td><td>1</td><td>4</td><td>3</td><td>[Number of connected units]</td><td></td></tr>
</table>
After the above checks, return rotary switches SW01, SW02, and SW03 to 1/1/1.</td></tr>
</table>



7-4-3. Address Setup Procedure

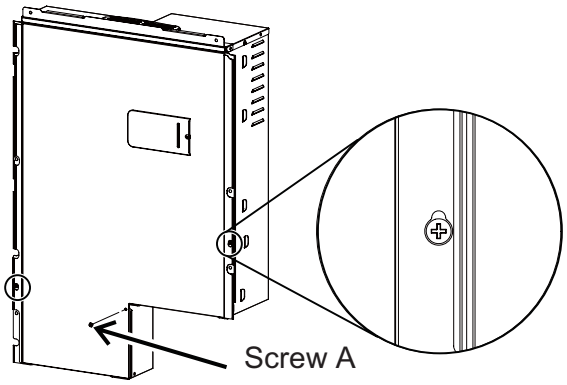
Before setting the address, it is necessary to set the DIP-SW on the header outdoor unit interface P.C. board.

1. Follow the steps below to open the electrical control box cover

(1) Loosen the screws on the left and right side of the electrical control box cover.

(2) Remove the screw A for from MMY-SUG160 to SUG240.
(There is no screw A for from MMY-SUG080 to SUG140.)

(3) Hold the lower side of the electrical control box cover to draw it toward you while lifting it up, and remove the electrical control box cover.



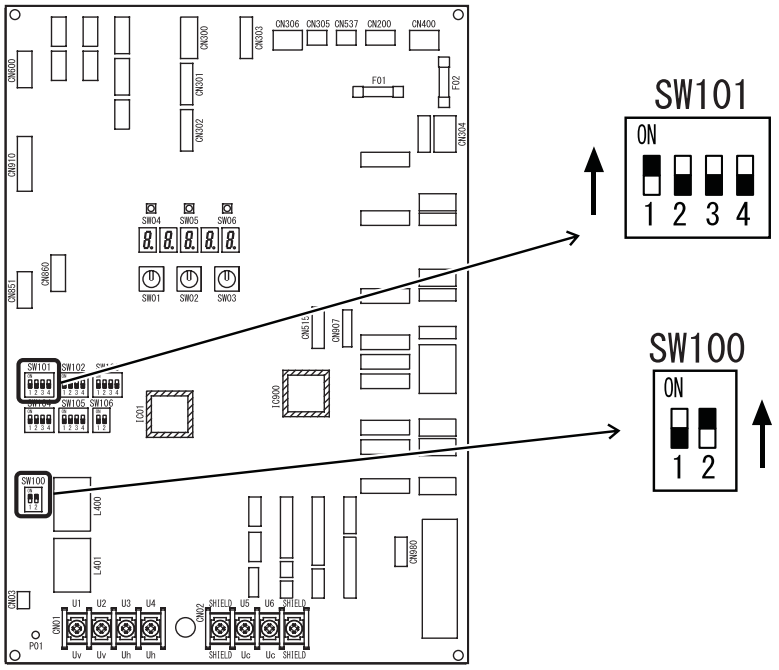
2. Follow the steps below to set the DIP switch on the outdoor unit interface P.C. board.

2-1. Outdoor unit setting

Turn on DIP switch 1 of SW101 on the outdoor unit interface P.C. boards*.
And, turn on DIP switch 2 of SW100. (Termination resistance of Uv line)

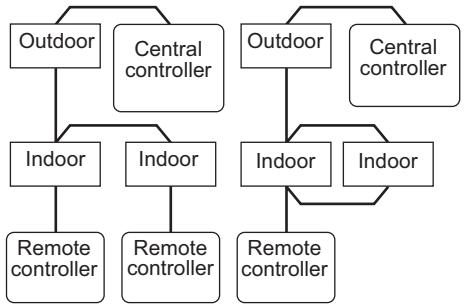
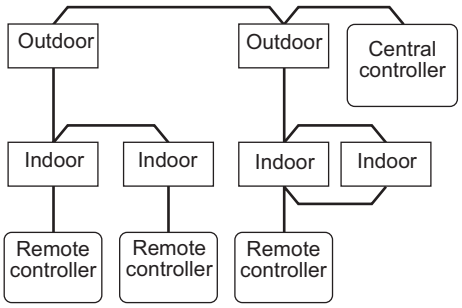
* Outdoor unit setting is required also of an outdoor independent system.

Interface P.C. board on the outdoor unit



2-2.Line (system) address setting

For the central control among two or more refrigerant lines or group control among two or more refrigerant lines, set the line (system) address.

(Example)	Controlling a single refrigerant line centrally	Controlling 2 or more refrigerant lines centrally
System wiring diagram		
Line (system) address setting	No	Set the address

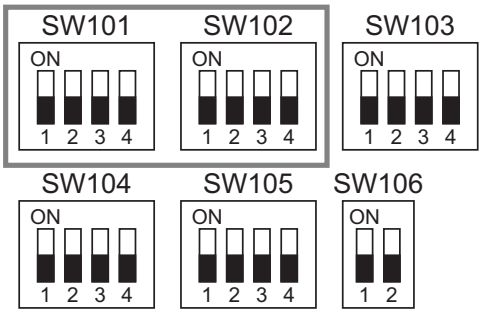
(1) Set a line (system) address for each system using SW 101 and 102 on the interface P.C. board on the outdoor unit of each system.
(Factory default: Address 1)

NOTE

Be sure to set a unique address on each system. Do not use a same address as another system (refrigerant line) or a "Digital Inverter" side.

Interface P.C. board on the header outdoor unit

Line address switches on the outdoor interface PC board (O : switch on, × : switch off)



Line (system) address	SW101				SW102			
	1	2	3	4	1	2	3	4
1		×	×	×	×	×	×	×
2		×	×	×	×	×	×	O
3		×	×	×	×	×	O	×
4		×	×	×	×	×	O	O
5		×	×	×	×	O	×	×
6		×	×	×	×	O	×	O
7		×	×	×	×	O	O	×
8		×	×	×	×	O	O	O
9		×	×	×	O	×	×	×
10		×	×	×	O	×	×	O
11		×	×	×	O	×	O	×
12		×	×	×	O	×	O	O
13		×	×	×	O	O	×	×
14		×	×	×	O	O	×	O

Line (system) address	SW101				SW102			
	1	2	3	4	1	2	3	4
15		×	×	×	O	O	O	×
16		×	×	×	O	O	O	O
17		×	×	O	×	×	×	×
18		×	×	O	×	×	×	O
19		×	×	O	×	×	O	×
20		×	×	O	×	×	O	O
21		×	×	O	×	O	×	×
22		×	×	O	×	O	×	O
23		×	×	O	×	O	O	×
24		×	×	O	×	O	O	O
25		×	×	O	O	×	×	×
26		×	×	O	O	×	×	O
27		×	×	O	O	×	O	×
28		×	×	O	O	×	O	O

Note: if you set it to something other than the table, the system address will be 28.

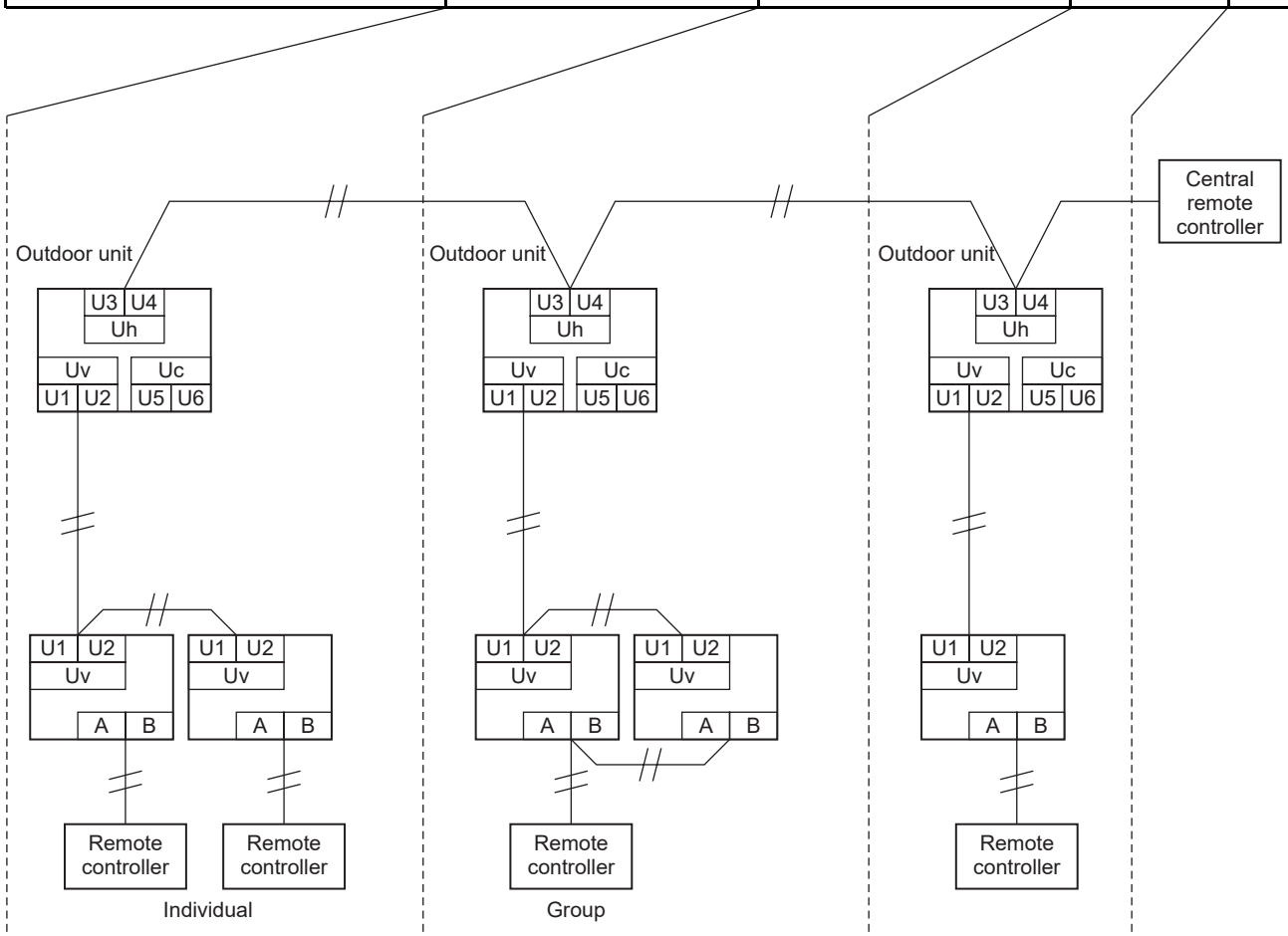
: SW101 Bit 1 is for outdoor unit setting, so it is not used for system address setting.

(2) After completing address setting of all systems, turn ON DIP switch 1 of SW100 on the outdoor unit interface P.C. board of the lowest system address number.

Switch setting (setting example when controlling 2 or more refrigerant lines centrally)
Outdoor units (setting manually)

*The items in bold font must be set manually.

Outdoor unit's interface P.C. board	Outdoor unit	Outdoor unit	Outdoor unit	Factory default
SW101 Bit1 (Header unit setting)	**ON**	**ON**	**ON**	OFF
SW101 Bit2-4, SW102 Bit1-4 (Line (system) address)	1 (ALL OFF)	**2**	**3**	1 (ALL OFF)
SW100 Bit1 (Terminator of central control line (Uh))	**ON**	(No setting required)	(No setting required)	OFF
SW100 Bit2 (Terminator of indoor and outdoor communication line(Uv))	**ON**	**ON**	**ON**	OFF



Indoor units (automatic setting)						Factory default
Line (system) address	1	1	2	2	3	Un
Indoor unit address	1	2	1	2	1	Un
Group address	0	0	1	2	0	Un

3. Attach the electrical control box cover.

4. Address setup

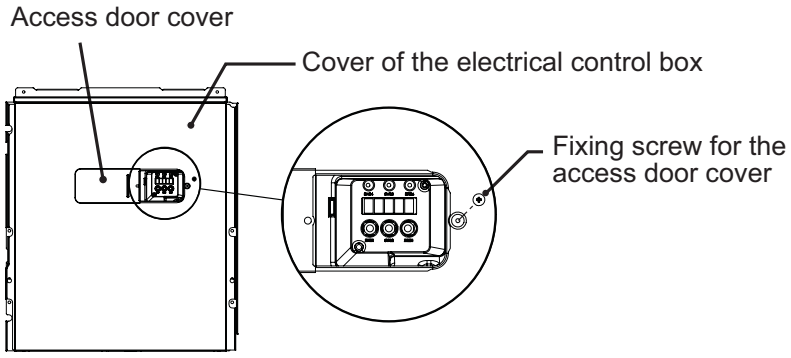
■ Automatic address setup

Open the access door cover and follow the steps below to set the address.

REQUIREMENT

- High voltage parts exist in the electrical control box.
  If you set addresses on an outdoor unit, operate the unit through the access door as shown in the illustration below to avoid electric shock. Do not remove the cover of electrical control box.

* After finishing operations, close the access door cover and fix it with the screw.



1 **Turn on indoor units first, and then turn on outdoor units.**

2 **About 1 minute after turning the power on, confirm that the 7-segment display on the interface P.C. board of the header outdoor unit indicates U. 1. Err (U. 1. flash) and L08 alternately at 1 second intervals.**

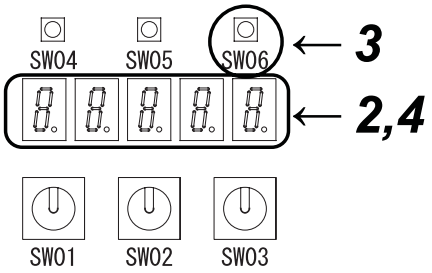
3 **Press SW06 for more than 1 second to start the automatic address setting.**
(It may take up to 10 minutes (normally about 5 minutes) to complete one line's setting.)

4 **The 7-segment display indicates Auto 1 → Auto 2 → Auto 3 .**
The setting is complete when the display changes to U. 1. - - - (U. 1. flash) or U. 1. - - - (U. 1. light) .

5 **Repeat steps *2* to *4* for other refrigerant lines.**

6 **Set the central control address.**
(For the setting of the central control address, refer to the installation manuals of the central control devices.) If an indoor unit incompatible with R32 refrigerant is connected, "L02" is displayed.

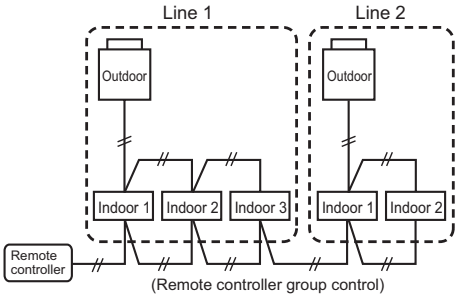
Interface P.C. board on the header outdoor unit



■ Manual address setup from the remote controller

With indoor wiring work completed and outdoor wiring work not done—in cases where indoor unit addresses are decided in advance from the wired remote controller, or in cases where addresses are change after address setup.

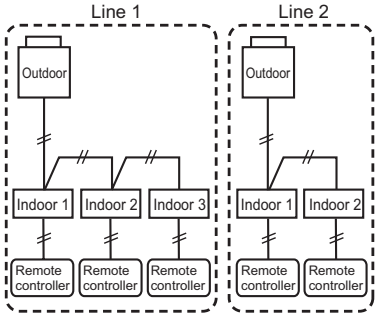
(Wiring example for 2 refrigerant lines)



Line address	1	1	1	2	2
Indoor address	1	2	3	1	2
Group address	1 Header	2 Follower	2 Follower	2 Follower	2 Follower

In the above example, where remote controllers are not yet wired, set the address manually after individually connecting the wired remote controller.

(Wiring during manual address setup)

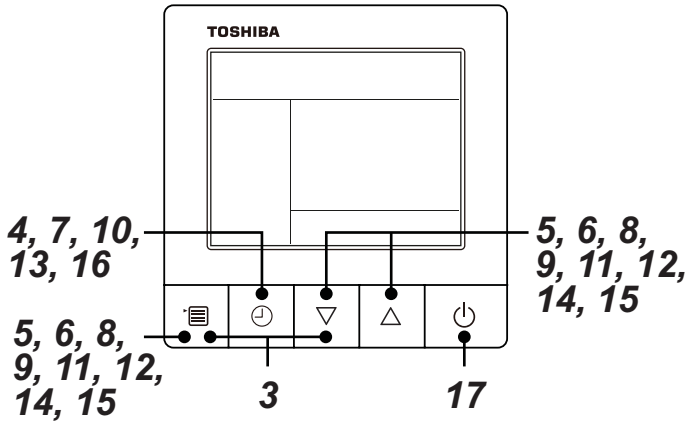


After address setup, return to the original wiring over remote controllers.

Group address

Individual: 0000
Header unit: 0001
Follower unit: 0002
} In cases of remote controller group control

<RBC-ASCU11*>

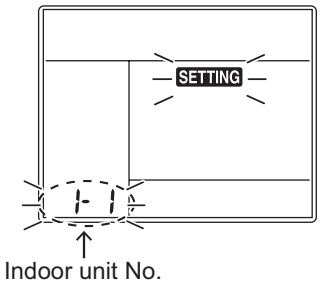


1 **Pair the indoor unit to set and the remote controller one-to-one.**

2 **Turn on the power.**

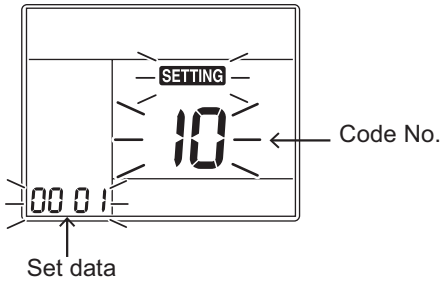
3 **Push and hold menu button and [▽] setting button simultaneously for 10 seconds or more.**

After a while, the display flashes as shown in the figure.
"ALL" is displayed as indoor unit numbers during initial communication immediately after the power has been turned on.



▼ (Refrigerant line address)

4 **Push the Timer off button.**



5 **Push the menu button to make Code No. flash. Change Code No. to 12 with [▽] [△] setting button.**

6 **Push the menu button to make Set data [****] flash. Set the system address with [▽] [△] setting button.**

(Match the address with the address on the interface P.C. board of the header outdoor unit in the same refrigerant line.)

7 **Push the Timer off button.**

(When the display changes from [– –] to Set data [****] flashing, the setup is completed.)

▼ **(Indoor address)**

8 **Push the menu button to make Code No. flash. Change Code No. to 13 with [▽] [△] setting button.**

9 **Push the menu button to make Set data [****] flash. Set the indoor unit address with [▽] [△] setting button.**
(TU2C-LINK : 0001~0128

10 **Push the Timer off button.**
(When the display changes from [– –] to Set data [****] flashing, the setup is completed.)

▼ **(Group address)**

11 **Push the menu button to make Code No. flash. Change Code No. to 14 with [▽] [△] setting button.**

12 **Push the menu button to make Set data [****] flash. Set the group address with [▽] [△] setting button.**
If the indoor unit is individual, set the address to ,0000 ; header unit, 0001 ; follower unit, 0002.

13 **Push the Timer off button.**
(When the display changes from [– –] to Set data [****] flashing, the setup is completed.)

▼ **(Central control address)**

14 **Push the menu button to make Code No. flash. Change Code No. to 03 with [▽] [△] setting button.**

15 **Push the menu button to make Set data [****] flash. Set the indoor unit address with [▽] [△] setting button.**
(TU2C-LINK : 0001~0128

16 **Push the Timer off button.**
(When the display changes from [– –] to Set data [****] flashing, the setup is completed.)

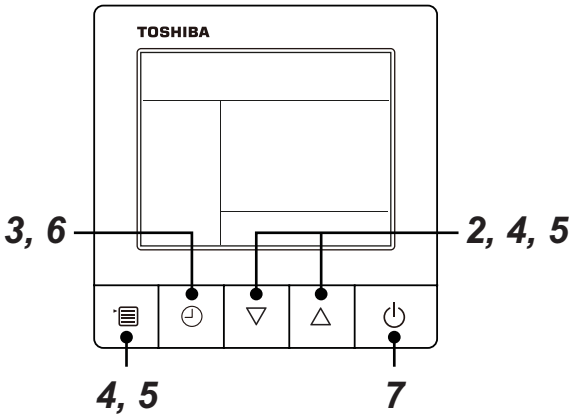
17 **When all the settings have been completed, push ON/OFF button to determine the settings.**
" SETTING " flashes and then the display content disappears and the air conditioner enters the normal stop mode. (The remote controller is unavailable while " SETTING " is flashing.)
If an indoor unit incompatible with R32 refrigerant is connected, "L02" is displayed.
If "L02" is displayed, please check whether the connected indoor unit is compatible with A2L refrigerant.

NOTE

(1) The Code No. [E04] (Indoor / outdoor communication trouble) will appear if line (system) addresses are mistakenly set.
(2) When manual address setup has been done from a remote controller, and central control over refrigerant lines is to be done, setup the header unit of each line as follows:
- Using SW101 and SW102 on the interface PC board of the header unit of each line, setup the line address for each line.
- Turn ON DIP switch 1 of SW100 on the header outdoor unit interface P.C.board of the lowest system address number.
- After that, set up the central control address. (For central control address setup, refer to the installation manual of the central control devices.)

To change an indoor unit address using a wired remote controller.

<RBC-ASCU11*>
The method to change the address of an individual indoor unit (the indoor unit is paired with a wired remote controller one-to-one), or an indoor unit in a group.
(The method is available when the addresses have already been set automatically.)



(Execute it while the units are stopped.)

1 **Push and hold menu button and [▽] setting button simultaneously for 10 seconds or more.**

(If 2 or more indoor units are controlled in a group, the first indicated UNIT No. is that of the head unit.)

2 **Each time [▽] [△] setting button is pushed, indoor unit numbers in the group control change cyclically.**
Select the indoor unit to change settings for.
(The fan and louvers of the selected indoor unit are activated.)

(The fan of the selected indoor unit is turned on.)

3 **Push the Timer off button.**

4 **Push the menu button to make Code No. flash. Change Code No. to 13 with [▽] [△] setting button.**

5 **Push the menu button to make Set data [****] flash.**
Push the [▽] [△] buttons repeatedly to change the value indicated in the SET DATA section to that you want.

6 **Push the Timer off button.**

(When the display changes from [– –] to Set data [****] flashing, the setup is completed.)

7 **When all the settings have been completed, push ON/OFF button to determine the settings.**

" SETTING " flashes and then the display content disappears and the air conditioner enters the normal stop mode. (The remote controller is unavailable while " SETTING " is flashing.)

8 **To change settings of another indoor unit, repeat from Procedure 1.**

If an indoor unit incompatible with R32 refrigerant is connected, "L02 is displayed.

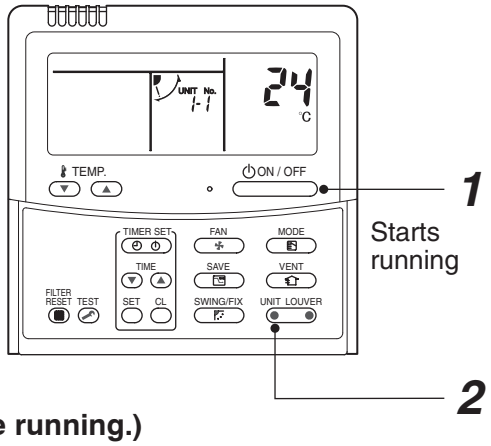
■ Confirming the indoor unit addresses and the position of an indoor unit using the remote controller

◆ Confirming the numbers and positions of indoor units

To know the indoor unit addresses though position of the indoor unit is recognized

▼ When the unit is individual (the indoor unit is paired with a wired remote controller one-to-one), or it is a group-controlled one.

<RBC-AMT∗∗∗>



(Execute it while the units are running.)

1 **Push the ON / OFF button if the units stop.**

2 **Push the UNIT LOUVER button (left side of the button).**

A unit numbers 1-1 is indicated on the LCD (it will disappear after a few seconds). The indicated number shows the system address and indoor unit address of the unit.
When 2 or more indoor units are connected to the remote controller (group-controlled units), a number of other connected units appears each time you push the UNIT LOUVER button (left side of the button).

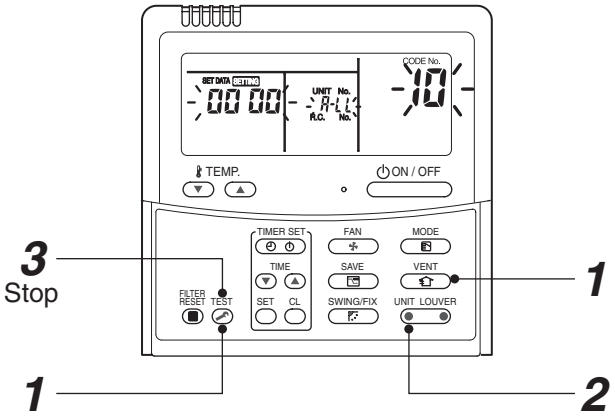
<RBC-ASCU11-∗>

There is no such function in the remote controller.

◆To find an indoor unit's position from its address

▼When checking unit numbers controlled as a group

<RBC-AMT∗∗∗>



(Execute it while the units are stopped.)

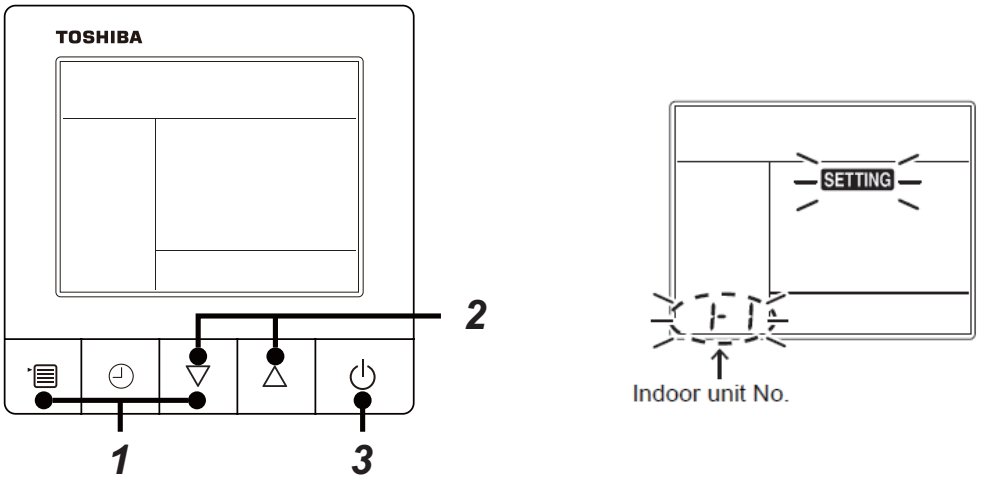
The indoor unit numbers in a group are indicated one after another. The fan and louvers of the indicated units are activated.

1 Push and hold the VENT and TEST buttons at the same time for more than 4 seconds.
- ALL appears on UNIT No. on the LCD display.
- The fans and louvers of all the indoor units in the group are activated.

2 Push the UNIT LOUVER button (left side of the button). Each time you push the button, the indoor unit numbers are indicated one after another.
- The first-indicated unit number is the address of the header unit.
- Only the fan and louvers of the indicated indoor unit are activated.

3 Push the TEST button to finish the procedure.
All the indoor units in the group stop.

<RBC-ASCU11-∗>



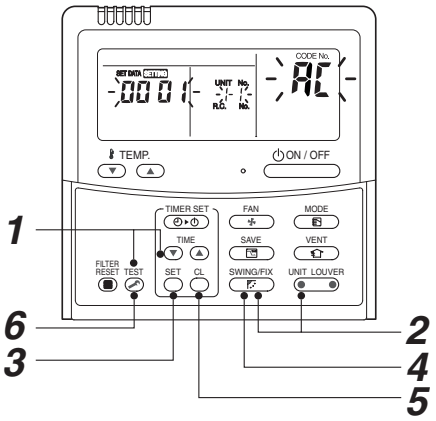
1 Push and hold the [menu + ▽] buttons at same time for more than 10 seconds. e.g.)A unit number 1-1 is indicated on the LCD. The indicated number shows the system address and indoor unit address of the unit.

2 When 2 or more indoor units are connected to the remote controller (group-controlled units), a number of other connected units appears each time you push the [▽ or △] buttons.

3 Push the [ON/OFF] button, return to the normal mode.

▼ To check all the indoor unit addresses using an arbitrary wired remote controller. (When communication wirings of 2 or more refrigerant lines are interconnected for central control)

<RBC-AMT∗∗∗>



(Execute it while the units are stopped.)

You can check indoor unit addresses and positions of the indoor units in a single refrigerant line.
When an outdoor unit is selected, the indoor unit numbers of the refrigerant line of the selected unit are indicated one after another and the fan and louvers of the indicated indoor units are activated.

1 **Push and hold the TIME ▼ and TEST buttons at the same time for more than 4 seconds. At first, the line 1 and CODE No. AC (Address Change) are indicated on the LCD display. (Select an outdoor unit.)**

2 **Push the UNIT LOUVER button (left side of the button) and SWING/FIX buttons repeatedly to select a system address.**

3 **Push the SET button to confirm the system address selection.**

- The address of an indoor unit connected to the selected refrigerant line is indicated on the LCD display and its fan and louvers are activated.

4 **Push the UNIT LOUVER button (left side of the button). Each time you push the button, the indoor unit numbers of the selected refrigerant line are indicated one after another.**

- Only the fan and louvers of the indicated indoor unit are activated.

◆ To select another system address

5 **Push the CL button to return to step *2*.**

- After returning to step ***2***, select another system address and check the indoor unit addresses of the line.

6 **Push the TEST button to finish the procedure.**

<RBC-ASCU11-∗>

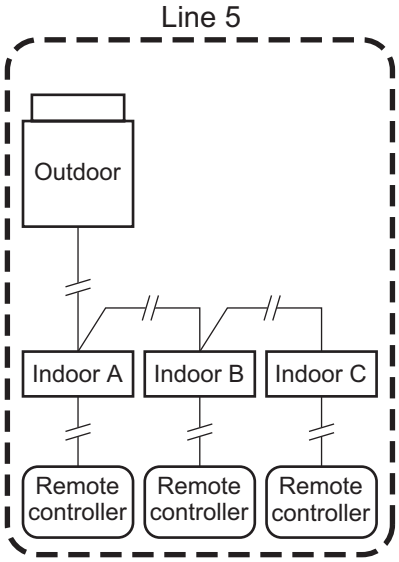
There is no such function in the remote controller.

Method 1 (Changing the address after automatic address setup)

Follow the procedures below if the power supply and communication line wiring work has been completed.

1) Turn the power for every outdoor unit and indoor unit on.
2) Perform "Automatic address setup" from the header outdoor unit.
   The system address, indoor address, and the group address will be set for every indoor unit in the system automatically.
3) Perform "Communication setting" from the header outdoor unit.
   TU2C-Link will be set if all the outdoor units, indoor units, and the remote controller support TU2C-Link.
   (Outdoor DN code (O.DN) [082]=0003, indoor DN code (I.DN) [FC]=0003)
   For the units in the farthest rooms, the indoor termination resistance will automatically be set to on.
   (Indoor DN code (I.DN) [1FC]=0001 (ON))
4) Change the indoor address (or the group address) to any address within 1 to 128 according to the method to change the indoor address using the remote controller.

<Example> When the indoor address of line 5 is set to 126-128



2) After the automatic address setting

		Indoor A	Indoor B	Indoor C
Line (system) address	I.DN [12]	**0005**	**0005**	**0005**
Indoor address	I.DN [13]	**0001**	**0002**	**0003**
Group address	I.DN [14]	**0001**	**0002**	**0002**
Communication setting	I.DN [FC]	0000	0000	0000
Indoor termination	I.DN [1FC]	0000	0000	0000

3) After the automatic communication settings

Line (system) address	I.DN [12]	0005	0005	0005
Indoor address	I.DN [13]	0001	0002	0003
Group address	I.DN [14]	0001	0002	0002
Communication setting	I.DN [FC]	**0003**	**0003**	**0003**
Indoor termination	I.DN [1FC]	0000	0000	**0001**

4) After changing the indoor address with the remote control.

Line (system) address	I.DN [12]	0005	0005	0005
Indoor address	I.DN [13]	**0126**	**0127**	**0128**
Group address	I.DN [14]	0001	0002	0002
Communication setting	I.DN [FC]	0003	0003	0003
Indoor termination	I.DN [1FC]	0000	0000	0001

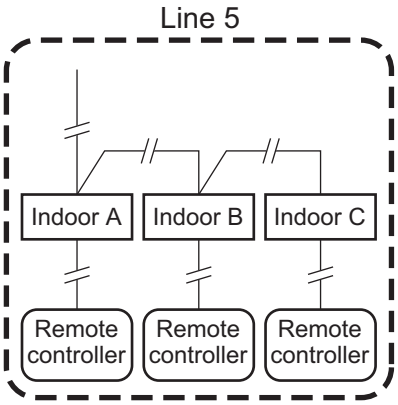
Method 2 (Setting the address manually from the remote controller)

Follow the procedure below if setting the indoor unit address manually from the remote controller is desired due to the indoor address not being set (factory default) and automatic address setting not being possible for reasons such as the outdoor unit installation not being installed.

<RBC-AMSU51∗>

1) Arrange one indoor unit and one remote controller set to 1 by 1.
   Turn on the power.
2) After confirming that "SETTING" is blinking on the remote controller, turn the screen to the "Field setting menu" by pushing the "MENU" and " ∨ " together for 4 seconds or longer.
   Select the "7. DN setting" using the " ∧ " and " ∨ " button and push the "F2(Set)" button.
   Select the "Indoor unit" using the " ∧ " and " ∨ " button and push the "F2(Set)" button.
3) Set the Indoor Unit Function Code (I.DN) to [14], and the Data to [0000] (Individual).
   • Set the group address to (individual).
4) Set the Indoor Unit Function Code (I.DN) to [FC], and the Data to [0003](Individual).
   • Set the system to TU2C-Link communication.
5) Push the "MENU" button and complete the settings for the time being.
6) After the remote controller reboots, turn the screen to the "Field setting menu" by pushing the "MENU" and " ∨ " together for 4 seconds or longer.
7) Bring up the "DN setting" screen by following the same procedure as in 2) above, and change to the Function Code (DN) I.DN setting screen of “Indoor unit”.
8) Set the Line address by setting the Indoor Unit Function Code (I.DN) to [12].
9) Set the indoor unit address by setting the Indoor Unit Function Code (I.DN) to [13].
10) When connecting to the remote controller group control,
    Set the DN code to [14], Data [0001] (header) for the header indoor unit, and the DN code to [14], Data [0002] (follower) for the follower indoor unit.
11) If necessary, set the zone address to the Indoor Unit Function Code (I.DN) to [03].

Example) When setting the Indoor address to 126 to 128 in Line 5 is desired



Before making settings (At shipment)

		Indoor A	Indoor B	Indoor C
Line (system) address	I.DN [12]	00Un	00Un	00Un
Indoor unit address	I.DN [13]	00Un	00Un	00Un
Group address	I.DN [14]	00Un	00Un	00Un
Communication setting	I.DN [FC]	0000	0000	0000
Indoor termination	I.DN [1FC]	0000	0000	0000

After setting 3) and 4)

Line (system) address	I.DN [12]	00Un	00Un	00Un
Indoor unit address	I.DN [13]	00Un	00Un	00Un
Group address	I.DN [14]	**0000**	**0000**	**0000**
Communication setting	I.DN [FC]	**0003**	**0003**	**0003**
Indoor termination	I.DN [1FC]	0000	0000	0000

After setting 8),9) and 10) (11))

Line (system) address	I.DN [12]	**0005**	**0005**	**0005**
Indoor unit address	I.DN [13]	**0126**	**0127**	**0128**
Group address	I.DN [14]	**0001**	**0002**	**0002**
Communication setting	I.DN [FC]	0003	0003	0003
Indoor termination	I.DN [1FC]	0000	0000	0000

<Setting the indoor terminal resistance manually (if the farthest room is known)>

12) Set the Indoor Unit Function Code I.DN [1FC] to "0001" (indoor terminal resistance ON).
13) After installing the outdoor unit, set the Outdoor Unit Function Code O.DN [82] to "0003" (TU2C-Link) for the header outdoor unit and the follower outdoor unit.
14) Reset the outdoor / indoor unit power supply to complete the setting.

<Setting the indoor terminal resistance automatically (if the farthest room is unknown)>

The indoor terminal resistance settings will be available after installing the outdoor unit and performing the communication method settings from the header outdoor unit, thus the farthest room will be detected automatically, and indoor terminal resistance can be set.
Make sure that this is done after 11), **since the communication method settings has to be performed after changing back to TCC-LINK settings**.

15) Clear the communication method from the header outdoor unit after installing the outdoor unit.
All the communication method settings for the indoor and outdoor unit in the same system will be set to TCC-LINK.
(The indoor addresses will not be changed at this time.)
16) Perform the communication method settings from the header outdoor unit. If all of the outdoor unit, the indoor units, and the remote controller in the same system supports TU2C-LINK, they will be set to TU2C-LINK settings, and the indoor terminal resistance settings will turn on automatically.
17) Reset the outdoor / indoor unit power supply to complete the setting.

<When the farthest indoor unit is known and the indoor terminating resistor is set manually>

12) After setting the indoor terminating resistor

Line (system) address	I.DN [12]	0005	0005	0005
Indoor unit address	I.DN [13]	0126	0127	0128
Group address	I.DN [14]	0001	0002	0002
Communication setting	I.DN [FC]	0003	0003	0003
Indoor termination	I.DN [1FC]	0000	0000	**0001**

<If you do not know the farthest indoor unit and use automatic communication settings>

15) After resetting communication settings

Line (system) address	I.DN [12]	0005	0005	0005
Indoor unit address	I.DN [13]	0126	0127	0128
Group address	I.DN [14]	0001	0002	0002
Communication setting	I.DN [FC]	**0000**	**0000**	**0000**
Indoor termination	I.DN [1FC]	0000	0000	0000

16) After automatic communication setting

Line (system) address	I.DN [12]	0005	0005	0005
Indoor unit address	I.DN [13]	0126	0127	0128
Group address	I.DN [14]	0001	0002	0002
Communication setting	I.DN [FC]	**0003**	**0003**	**0003**
Indoor termination	I.DN [1FC]	0000	0000	**0001**

■ Resetting the address (Resetting to the factory default (address undecided))

Method 1

Clearing each address separately using a wired remote controller.
Set the system address, indoor unit address and group address to “00Un” using a wired remote controller. (For the setting procedure, refer to the address setting procedures using the wired remote controller on the previous pages.)
* Address not set will be either "00Un" or "0099", depending on the type of the remote controller.

Central control address (I.DN [03]) • Indoor unit address (I.DN [13])

Remote controller	Communication Type	Unfixed	Display order
SHRM-A	TU2C-LINK	00Un	• • • ⇔0128⇔00Un⇔0001⇔ • • •

Line address (I.DN [12])

Remote controller	Communication Type	Unfixed	Display order
SHRM-A	TU2C-LINK	00Un	• • • ⇔0128⇔00Un⇔0001⇔ • • •

Group address (I.DN [14])

Remote controller	Communication Type	Unfixed	Display order
SHRM-A	TU2C-LINK	00Un	• • • ⇔0002⇔00Un⇔0000⇔ • • •

Method 2

Clearing all the indoor unit addresses on a refrigerate line at once from the outdoor unit.

1 **Turn off the refrigerant line to reset to the factory default.**

2 **Turn on the indoor and outdoor units of the refrigerant line for which you want to initialize the addresses. About one minute after turning on the power, confirm that the 7-segment display on the outdoor unit indicates “U.1. - - -” and operate the interface P.C. board on the outdoor unit of the refrigerant line as follows.**

SW01	SW02	SW03	SW04	Clearable addresses
2	1	2	Confirm that the 7-segment display indicates “A.d.buS” and turn SW04 ON for more than five seconds.	System/indoor unit/group address
2	2	2	Confirm that the 7-segment display indicates “A.d.nEt” and turn SW04 ON for more than five seconds.	Central control address

3 **Confirm that the 7-segment display indicates “A.d. c.L.” and set SW01, SW02 and SW03 to 1, 1, 1 respectively.**

4 **After finished clearing the address successfully, “U.1.Err” and “L08 “ appear alternatively at 1 second intervals on the 7-segment display.**

5 **Set the addresses again after finishing the clearance.**

Communication setting

This product need setting TU2C-Link communication after the address setting.

⚠ CAUTION

- Be sure to complete the address setting before communication setting.
- It may takes about 1 to 3 minutes to address one refrigerant line.
- Settings on the outdoor unit are required for communication setting.
  (Communication setting is not started simply by turning on the power.)
- If a unit that has already been set for communication is connected, it cannot be set correctly.
  In this case, clear the communication settings and set again.
- The indoor unit DN code (FC) and outdoor unit DN code (82) are automatically set for the set communication.
  In the case of the TU2C-LINK system, the terminating resistance (indoor unit DN code (1FC)) of the indoor unit that maximizes the wiring length from the outdoor unit is automatically set.

■ Communication setting (Auto setting)

1. Turn on indoor units first, and then turn on outdoor units.
2. Set the rotary switches on the interface P.C. board of the header outdoor unit SW01 to [2], SW02 to [16] and SW03 to [2].
3. The 7-segment display switches between “c.c. b P S” and “c.c. 0 “ at 1-second intervals.
4. Push and hold SW04 for more than 5 seconds.
5. The 7-segment display flashes “c.c.i n”.
6. The 7-segment display switches between “c.c. i n” and “c.c. ∗ ∗ ∗ “ at 1-second intervals.
   Check the number of connected indoor units [∗ ∗ ∗].
   If the number of indoor units is right, move on to 7.

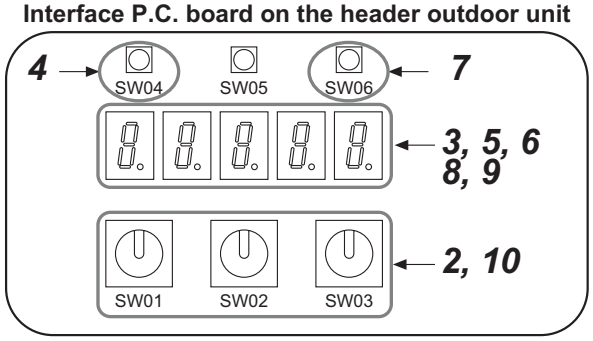
   When the number of the connected indoor units differs from the number of indoor units displayed on the 7-segment display, clear the communication type setting to eliminate the cause.
   To clear the communication type setting, push and hold the SW05 for 5 seconds or more.
   The 7-segment display flashes “c.c.r S t” .
   After a while, the 7-segment display switches between “c. c. b p s” and “c.c. 0”
   Set the rotary switch back to SW01 to [1], SW02 to [1], SW03 to [1].

7. Push and hold SW06 for more than 5 seconds.
8. The 7-segment display flashes “c.c.b p s”.
   After that, the setting is complete when the 7-segment display changes to “c.c F i n”.
   (If the 7-segment display changes to “c.c. E r r “, try again.)
9. After a while, the 7-segment display switches between “c.c. b p s “ and “c.c. 1 “ (or “ c.c. o “) at 1-second intervals.
   When a TCC-Link compatible device is connected, "L02" is displayed. If "L02" is displayed, please check whether the connected device is a device compatible with TU2C-Link
10. Set the rotary switch on the interface P.C. board of the header outdoor unit back to SW01=[1], SW02=[1], SW03=[1].

Communication Type	7-segment display		Outdoor unit DN code No.(O.DN)	Indoor unit DN code No.(I.DN)		
			[082] (Communication setting)	[FC] (Communication setting)	[1FC] (Indoor termination resistance setup)	
TU2C-Link (U series and future models)	[A] [c.c.] [c.c.]	[B] [b P S] [1]	0003	0003	The farthest indoor unit (*1) 0001	Indoor units other than the left column 0000
TCC-Link (Other than U series)	[A] [c.c.] [c.c.]	[B] [b P S] [1]	0000	0000	0000	

*1 : Only the indoor unit that has the longest wiring length from the outdoor unit.
The indoor address of the indoor unit with the terminator turned on is confirm the items in "7-7-11. Monitor Function of Remote Controller Switch".

Interface P.C. board on the header outdoor unit

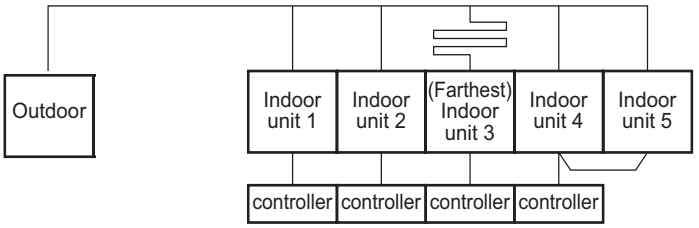


■ Procedure to set up the communication method manually

The communication method and the terminal resistance settings can be changed by setting the outdoor DN code (O.DN) and the Indoor Unit Function Code (I.DN).
(See also 6-4. Method to set Outdoor Unit Function Code No. (O.DN) for operation method.)

<Procedure to set the TU2C-Link communication setting>

1) Set the Outdoor Unit Function Code (O.DN) [082] of all outdoor units to "0003".
2) Set the Indoor Unit Function Code (I.DN) [FC] of all indoor units to "0003".
3) Set the Indoor Unit Function Code (I.DN) [1FC] of the farthest indoor unit to "0001" (set the indoor terminating resistor to ON).
   * If which indoor unit is the unit in the farthest room is unknown, perform the communication method automatic setup.

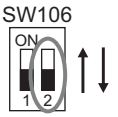


O.DN[82] Communication setting	3	3	3	3	3	3	3	I.DN[FC] Communication setting
			0	0	1	0	0	I.DN[1FC] Indoor termination resistance setup
Line (system) address (DIP SW)	7	–	7	7	7	7	7	I.DN[12] Line (system) address
			1	2	3	4	5	I.DN[13] Indoor unit address
			0	0	0	1 (Header)	2 (Follower)	I.DN[14] Group address

■ Procedure to clear the communication method (restoring the factory default [TCC-Link communication settings])

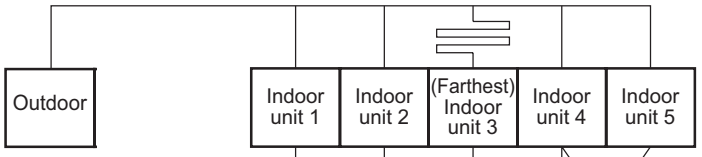
- This is a function in which the communication method setting for all the outdoor units and indoor units (every outdoor unit connected to the Uc line and every indoor unit connected to the Uv line) will reset to the TCC-Link communication settings. Also, the indoor terminal resistance settings for every indoor unit will be set back to OFF.
- The addresses for the indoor units (indoor address, line address, group address, and the zone address) will not be cleared.
- This function is also effective with unaddressed indoor units if connected to the Uv line.
- This function will not be available if there are no indoor units that can communicate with the outdoor unit. There must be at least one indoor unit that can communicate with the outdoor unit (in which the communication method is matched with the outdoor unit and its address is already set) to use this function. This function is available even if the communication method settings for the indoor unit and outdoor unit in the same system of TCC-Link and TU2C-Link coexist. The settings for the header outdoor unit to be operated can be either TCC-Link communication settings or TU2C-Link communication settings.

[Operation method]



1. Turn off indoor units first, and then turn off outdoor units.
2. Turn on DIP switch 2 of SW106 on the header outdoor unit interface P.C.boards.
3. Turn on the outdoor unit first, then turn on the indoor unit after about 20 seconds.
   (Turn on the header unit, and then 20 seconds or more later, turn on the follower units and indoor units.
   If the follower units cannot be turned on after the header unit has been turned on, turn on both of them simultaneously.)
4. The 7-segment display indication " - r S t. - ". Check all the units have turned on more than app 1 minute. Turn off all the indoor and outdoor units.
5. Turn off DIP switch 2 of SW106 on the header outdoor unit interface P.C.board.

<Example> Communication method clear operation in a system with mixed communication settings



Before communication method clear procedure

O.DN[82] Communication setting	0	3	3	3	3	0	3	I.DN[FC] Communication setting
			0	0	1	0	0	I.DN[1FC] Indoor termination resistance setup
Line (system) address (DIP SW)	7	–	7	Un	Un	7	7	I.DN[12] Line (system) address
			1	Un	3	4	5	I.DN[13] Indoor unit address
			0	Un	Un	1 (Header)	2 (Follower)	I.DN[14] Group address

After communication method clear procedure

O.DN[82] Communication setting	0	0	0	0	0	0	0	I.DN[FC] Communication setting
			0	0	0	0	0	I.DN[1FC] Indoor termination resistance setup
Line (system) address (DIP SW)	7	–	7	Un	Un	7	7	I.DN[12] Line (system) address
			1	Un	3	4	5	I.DN[13] Indoor unit address
			0	Un	Un	1 (Header)	2 (Follower)	I.DN[14] Group address

■ In the case of an increase in address-undefined indoor units (extension, etc.)

To set up the indoor address of a unit with an address that is undefined due to the extension of indoor units or replacement of PC board, etc., follow the methods below.

1. Clear the communication setting

Setup procedure

(1) Turn off indoor unit first, and then turn off outdoor units.

(2) Turn on DIP switch 2 of SW106 on the header outdoor unit interface P.C. board.

(3) Turn on the outdoor unit first, then turn on the indoor unit after about 20 second.
(Turn on the header unit, and then 20 seconds or more later, turn on the follower units and indoor units. If the follower units cannot be turned on after the header unit has been turned on, turn on both of them simultaneously.)

(4) The 7-segment display indication " - r S t. - ". Check all the units have turned on more than approx. 1 minute. Turn off all the indoor and outdoor units.

(5) Turn off DIP switch 2 of SW106 on the header outdoor unit interface P.C. board.

2. Address setting

Method 1

Set up an address individually from a wired remote controller.
(Line address, Indoor address, Group address, Central address)
For the setup method, refer to "Manual address setup from the remote controller." above.

Method 2

Set up an address from the outdoor unit.

* Leave the addresses of the units for which addresses have already been set up as they are. Set up an address only for the unit where the address is undefined.
Addresses are allocated from lower numbers.

Setup procedure

(1) Turn on the indoor/outdoor power for the refrigerant line for which an address is to be set up.
After approximately 1 minute, check that "U.1. - - -" is displayed on the 7-segment display.

(2) Execute the following operation on the interface PC board of the header unit.

SW01	SW02	SW03	SW04
2	14	2	After checking that "In.At" is displayed on the 7-segment display, push SW04 for 5 seconds or more.

"AUTO1" → "AUTO2" → "AUTO3" → ... → "AUTO9" ... is counted and displayed on the 7-segment display.

(3) When "U.1. - - -" is displayed on the 7-segment display, the setup operation finished.
Turn off the indoor/outdoor power.

3. Communication setting (Auto setting)

Setup procedure

(1) Turn on indoor units first, and then turn on outdoor units.

(2) Set the rotary switch of the interface P.C. board on the header outdoor unit to SW01=[2], SW02=[16] and SW03=[2].

(3) The 7-segment display switches between “c.c. b p s” and “c.c. 0 “ at 1-second intervals.

(4) Push and hold SW04 for more than 5 seconds.

(5) The 7-segment display flashes “c.c.i n”.

(6) The 7-segment display switches between “c.c. i n” and “c.c. *** “ at 1-second intervals.
Check the number of connected indoor units [***].
(When the number of the connected indoor units differs from the number of indoor units displayed on the 7-segment display, clear the communication type setting to eliminate the cause.
To clear the communication type setting, push and hold the SW05 for 5 seconds or more.
The 7-segment display flashes “c.c.r S t”.
After a while, the 7-segment display switches between “c.c. b p s “ and “c.c. 0 “.
Set the rotary switch back to SW01 to [1], SW02 to [1], SW03 to [1].)

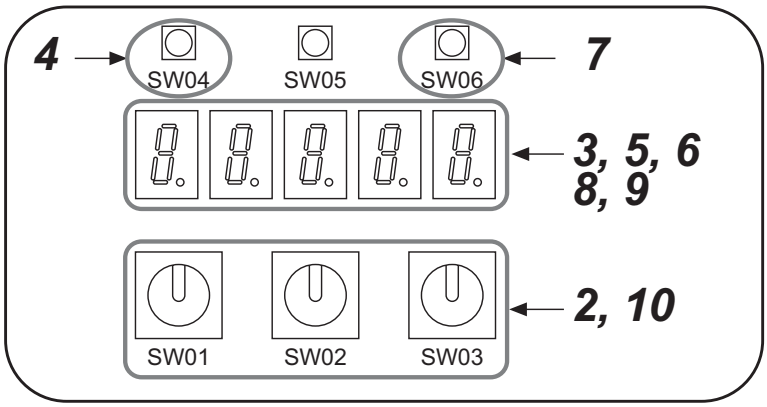
(7) Push and hold SW06 for more than 5 seconds.

(8) The 7-segment display flashes “c.c.b p s”.
After that, the setting is complete when the 7-segment display changes to “c.c F i n”.
(If the 7-segment display changes to “c.c. E r r “, try again.)

(9) After a while, the 7-segment display switches between “c.c. b p s “ and “c.c. 1 “ (or “ c.c. o “) at 1-second intervals.

(10) Set the rotary switch on the interface P.C. board of the header outdoor unit back to SW01=[1], SW02=[1], SW03=[1].

Interface P.C. board on the header outdoor unit



Procedures for adding an indoor unit with communication method and address already set

In cases of adding a new indoor unit with the TU2C-Link setup or address setup already completed due to relocation etc., perform the setup 1) to 3) below.

1) Communication method
   - Set the communication method of the indoor unit and the already existing system to the same settings.

   Method 1 The communication method and indoor terminating resistance can be set automatically after performing "Clear communication method", by setting the address to the added indoor unit, and then performing "Automatic setting of communication method".

   Method 2 Change the indoor DN code (I.DN) [FC] of the additional indoor unit to match the communication method of the existing system.
   If the indoor unit to be added is in the farthest room, turn the indoor terminal resistance on, and turn the indoor terminal resistance off for the other (already existing) indoor units.

2) Indoor terminal resistance
   - Turn the indoor terminal resistance for one of the indoor units in the farthest room ON.
     If which indoor unit is the unit in the farthest room is unknown, check the address for the indoor unit that the indoor termination resistance has been automatically set by performing "communication method automatic setup" after performing "communication method setup".

3) Address setup
   - Change the system address to match the already-existing system.
   - Make sure not to set duplicate indoor addresses.

   Method 1 Perform the method "In case of adding an unaddressed indoor unit (due to expansion etc.)" after setting the communication method of the indoor unit to be added to that of the already-existing system, and clearing the address.

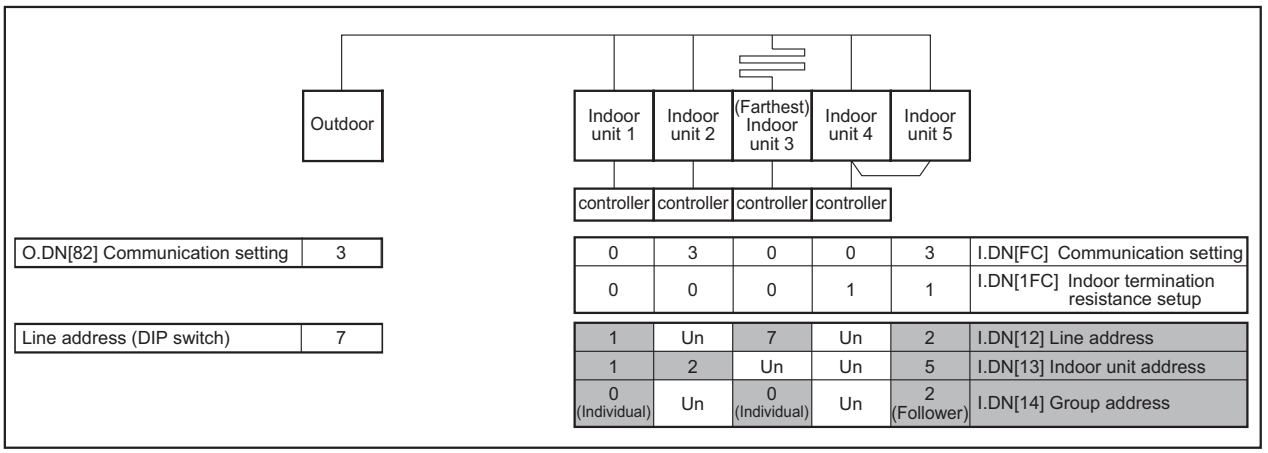
   Method 2 Change the communication method setting and the address for the indoor unit to be added manually from the indoor DN code (I.DN).

- Clear all indoor addresses, system address, and group addresses at once… Set the rotary switch SW01/SW02/SW03 on header outdoor unit to [2/1/2], and press SW04 for five seconds or longer.
- Clear all zone addresses at once … Set the rotary switch SW01/SW02/SW03 on header outdoor unit to [2/2/2], and press SW04 for five seconds or longer.
- Automatic address setting … Press SW06 on header outdoor unit when all indoor units have no indoor address set, and a "L08" error is occurring.
- Automatic address setting for unaddressed indoor units … Set the rotary switch SW01/SW02/SW03 on header outdoor unit to [2/14/2], and press the SW04 five seconds or longer.

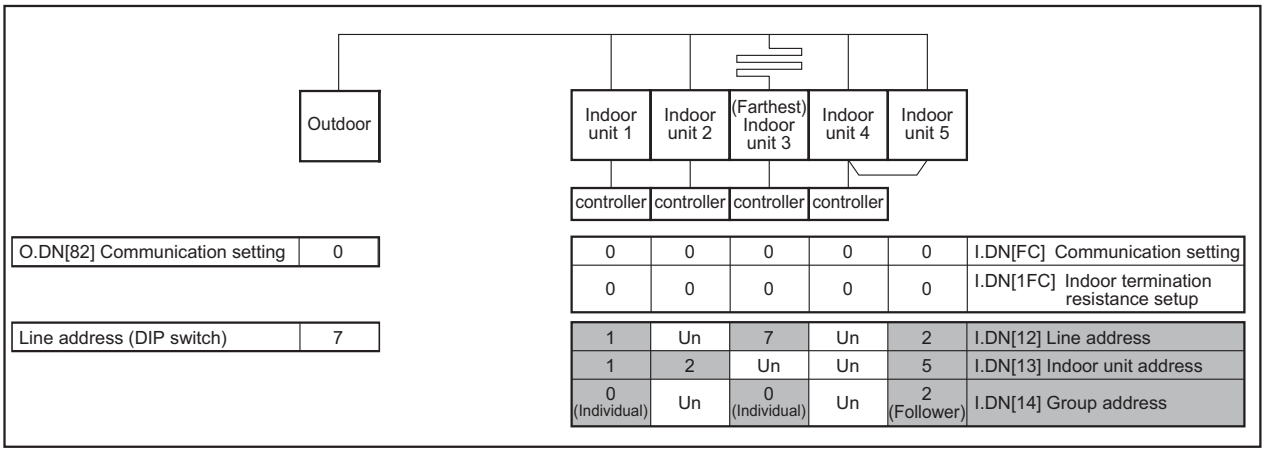
(Reference) Method to clear when communication method settings, address set / unset are coexisting

- If units with different communication method settings or units with set / unset addresses are coexisting, It can be changed back to the factory default settings by performing "Clear communication method" – "Clear all addresses (line, indoor, and group addresses) at once".
  Redo the address settings and communication method setting after this.

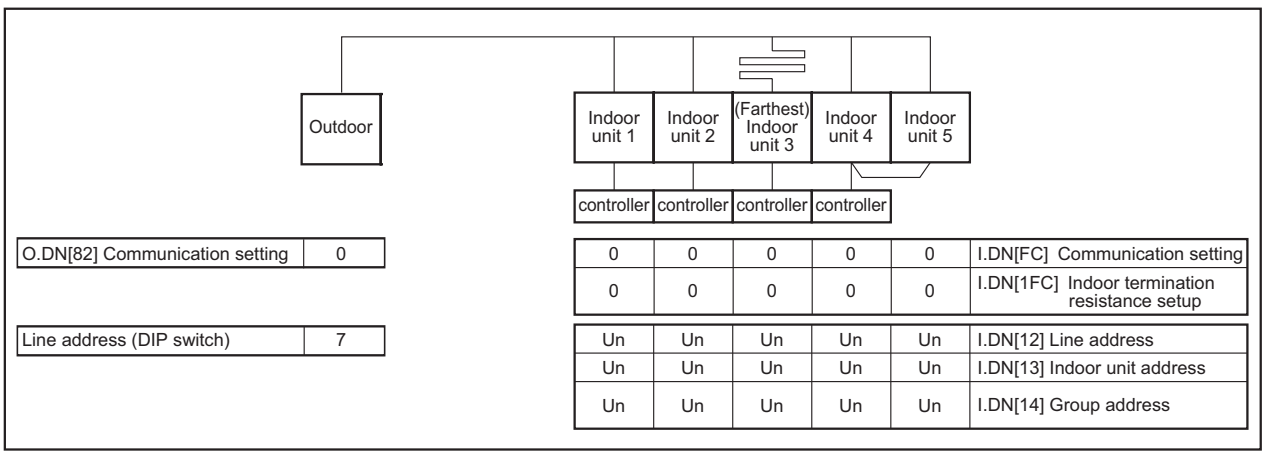
* Make sure that the communication method clearing is performed in advance.
If the addresses are batch-cleared before clearing the communication method, the communication method cannot be cleared since there will be no indoor units that can communicate with the outdoor unit.



Communication clearing method
- Communication settings for outdoor units and indoor units will automatically change from 3 to 0, and the indoor terminal resistance setting will automatically change from 1 to 0



Batch-clearing of addresses (Line, indoor, and group addresses)

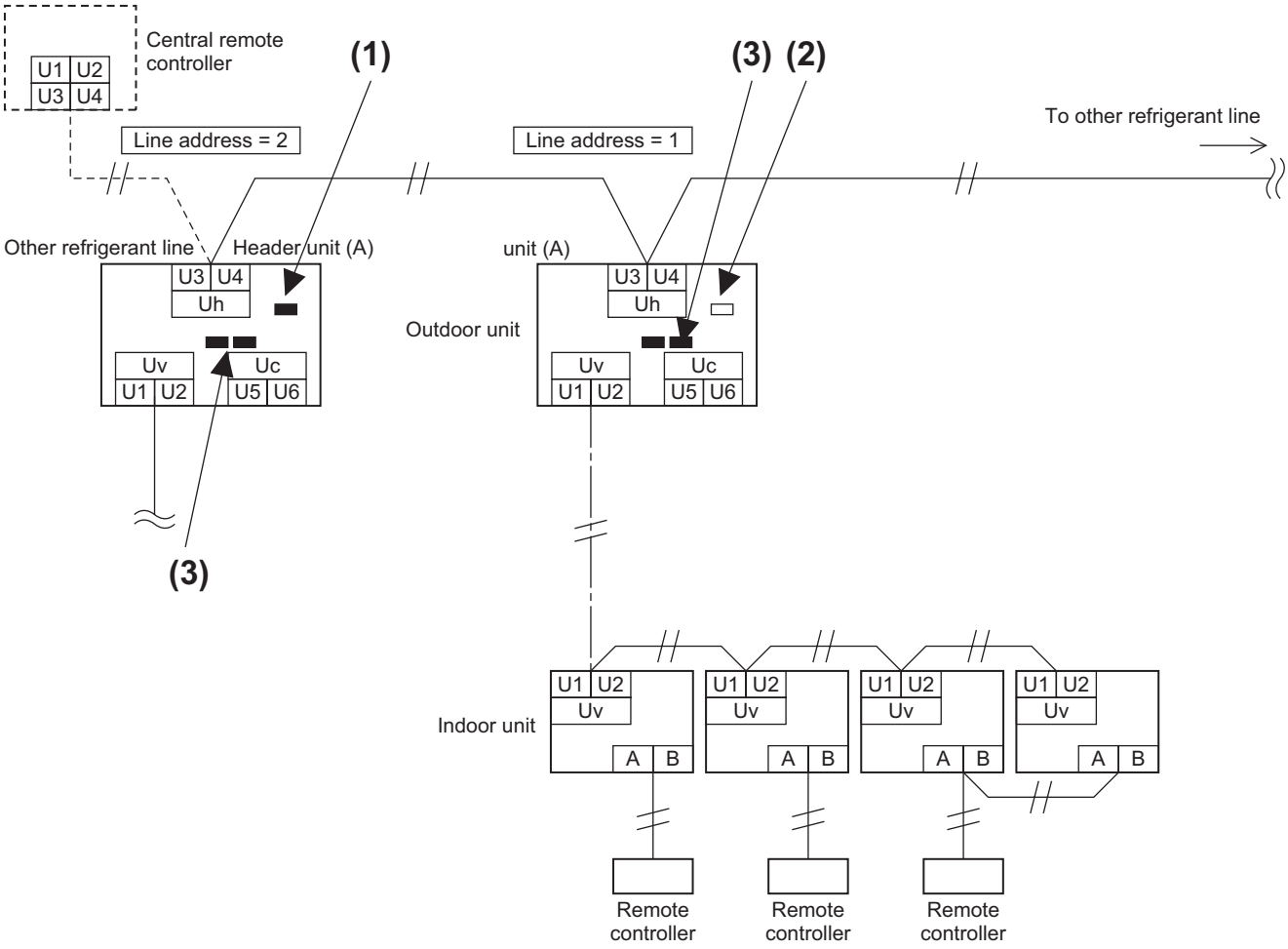


(Reference) Operations for communication method automatic setup / communication method clear, automatic address setting / address batch clear (When the outdoor unit, indoor unit, and the remote controller are all U series)

[Communication method settings] ... See the section on automatic settings for communication method.
[Clear communication method] ... See the section on how to clear the communication method.
[Automatic address setting] ... Press SW06 on header outdoor unit when all indoor units have no indoor address set, and an "L08" trouble is occurring.
[Batch clear all indoor addresses, line address, and group addresses] ... Set the rotary switch SW01/SW02/SW03 on header outdoor unit to [2/1/2], and press the SW04 for five seconds or longer.

7-4-4. Check after Address Setup when Central Control System Is Connected

When the central control system is connected, check that the following setup has finished after address setup.



	Main check items	Check
Terminator resistor	(1) Is the terminator resistor (SW100-bit1) of the header unit with the smallest line address number in the central control turned on? (Setup is unnecessary for follower units. (Factory default : OFF))	
	(2) Is the terminator resistor (SW100-bit1) of the header units, except for the line with the smallest central control line address, turned off? (Setup is unnecessary for follower units. (Factory default : OFF))	
Line address	(3) Are addresses in the line address (SW101,SW102) not duplicated in each refrigerant line?	

NOTE

The figure above does not show all the electric wires.
For details, refer to the installation manuals for the outdoor unit, indoor unit, remote controller, or optional devices.

7-4-5. Setting when connecting indoor units to FS (Flow Selector) unit or shut-off valve unit, and when connecting safety equipment

Cautions to connection of indoor unit

- When connecting the indoor units to a single port type FS unit, a branch of the multi port type FS unit and a shut-off valve unit, it is necessary to setup CODE No.[FE]
  Be sure to setup CODE No. [FE] after setup of address.
- When connecting the indoor units to a single port type FS unit and a branch of the multi port type FS unit and a shut-off valve unit, it is possible to connect with multiple groups or connect individually.
- When connecting the indoor units to a branch of the multi port type FS unit,
  it is necessary to set up the port address No. (the CODE No. [105]） .
  Be sure to set up the port address No..
- When connecting the indoor units to combining branches of the multi port type FS unit,
  it is necessary to set up the CODE No. [106].
  Be sure to set up the CODE No. [106].
- Even if there is no safety equipment, be sure to set safety measures (the CODE No. [107]).

Connection rules

- It is possible to branch after the port.
- It is possible to set the group of indoor units after the port.
- The multiport type FS unit can be set as group of indoor units across ports.
  1) Group settings across ports are allowed only to adjacent (contiguous) ports.
  2) Only some indoor units in one port are not allowed to be grouped with the indoor units on other ports.(It is allowed to group all indoor units in one port with the indoor units of other ports.)
- Ports can be combined and used.
  1) Port combining is allowed to up to 2 ports. Port combining of 3 or more ports is not allowed.
  2) Port combining is allowed only to adjacent ports.
- Group settings across FS units or shut-off valve units are not allowed..
- The FS unit and shut-off valve unit are allowed in the system.
- Connecting both FS units and shut-off valve units to the same indoor unit is not allowed.
- It is not possible to setup port combining across the PC board of the multiport type FS unit.
- Be sure to connect the No.1 port of the multiport type FS unit to the indoor unit.
  (If the indoor unit is not connected to No.1 port, the air conditioning system will not operate.)
- In the case of the same group, connect only one communication line to the FS unit (one place).
  (The connection location should be made at the A/B? terminal of the address with the smallest port address of the FS unit.)

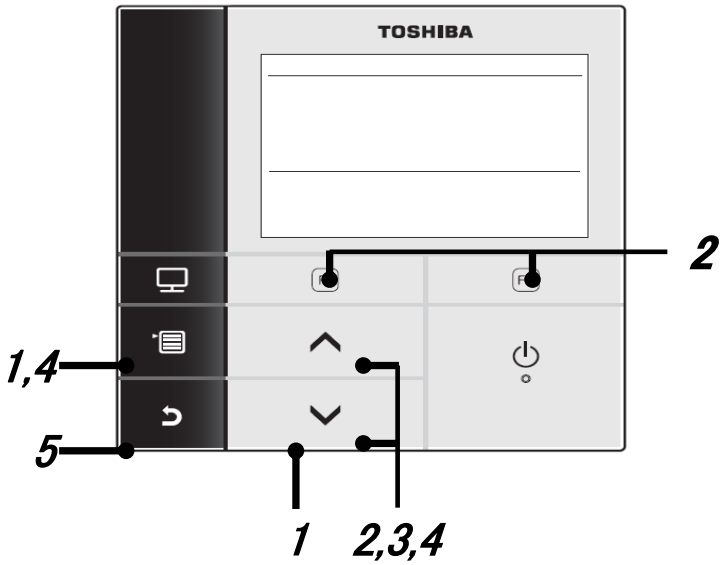
Setting rules

- The safety measures for indoor units set in the group shall be the same. (Allow mixing in the system.)
- Only one detector is used in a group.

■ **How to setup the CODE No. [FE] (Flow Selector unit address)**

• As for every single port type FS unit, multi port type FS unit and shut-off valve unit, setup CODE No. “FE” within the range of 1~128.
This CODE No. cannot be duplicate in one system.

1. Press and hold " MENU" button and [∨] setting button simultaneously for 4 seconds or more.
2. Select the ”DN setting" using the [∨] and [∧] button and press the "F2(Set)" button.
Select the corresponding ”Indoor unit" using the "F1(Unit)" button and push the "F2(Set)" button.(The fan and louvers of the selected indoor unit will be activated.)
3. Set the Indoor Unit Function Code (I.DN) to [FE] and the data using the [∨] and [∧] button
(The fan of the selected indoor unit is turned on.)
4. When done, press the " MENU" button.
5. Press the " CANCEL" button and complete the setting for the time being.



■ **How to set up the CODE No. [105] (Flow Selector unit and Shut-off Valve unit port address)**

• As for multi port type FS unit, set up CODE No. “105” within the range of 1~12.
This CODE No. should not be duplicate in one system.
• As for both single port type FS unit and shut-off valve unit, set up CODE No. “105” to 1.

1. Press and hold " MENU" button and [∨] setting button simultaneously for 4 seconds or more.
2. Select the ”DN setting" using the [∨] and [∧] button and press the "F2(Set)" button. Select the corresponding ”Indoor unit" using the "F1(Unit)" button and push the "F2(Set)" button.(The fan and louvers of the selected indoor unit will be activated.)
3. Set the Indoor Unit Function Code (I.DN) to [105] and the data using the [∨] and [∧] button (The fan of the selected indoor unit is turned on.)
4. When done, press the " MENU" button.
5. Press the " CANCEL" button and complete the setting for the time being.

■ **How to set up the CODE No. [106] (Combining branches mode of Flow Selector unit)**

• When connecting the indoor units to combining branches of the multi port type FS unit, set up CODE No. “106” to 1.
• When connecting the indoor units to NOT combining branches of the multi port type FS unit, set up CODE No. “106” to 0.

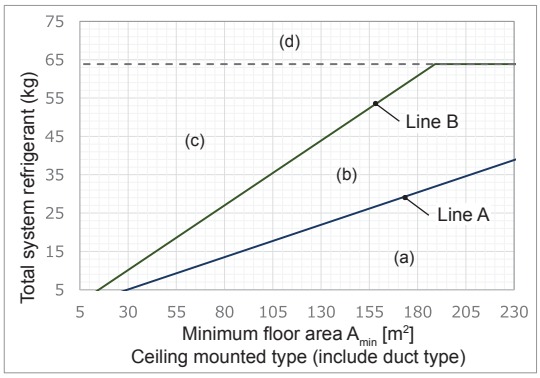
1. Press and hold " MENU" button and [∨] setting button simultaneously for 4 seconds or more.
2. Select the ”DN setting" using the [∨] and [∧] button and press the "F2(Set)" button. Select the corresponding ”Indoor unit" using the "F1(Unit)" button and push the "F2(Set)" button.(The fan and louvers of the selected indoor unit will be activated.)
3. Set the Indoor Unit Function Code (I.DN) to [106] and the data using the [∨] and [∧] button (The fan of the selected indoor unit is turned on.)
4. When done, press the " MENU" button.
5. Press the " CANCEL" button and complete the setting for the time being.

■Setting when connecting safety equipment

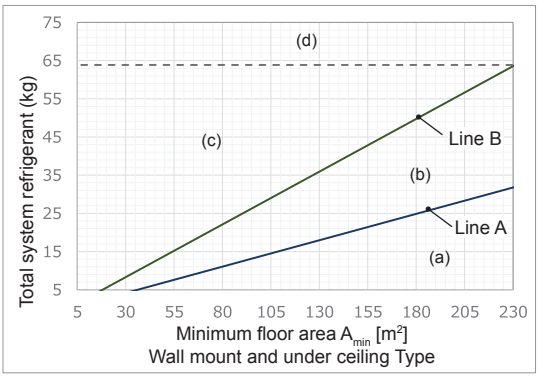
- To comply with the requirements of enhanced tightness refrigerating systems of IEC 60335-2-40, the system is equipped with the shut-off valves (Flow Selector unit, Shut-off valve unit) , Leak detector and Battery kit. And each systems have the appropriate safety systems in according to the system specifications.
  In case the requirements of this manual are followed, no additional safety measures are needed.
- Follow the installation requirements below to ensure that the complete system is compliant to legislation.
  If you have any questions, please contact the dealer where you purchased the product.
  Depending on the conditions, safety measures (optional parts) may be required.
- System compliance has been completed to IEC60335-2-40 Ed6, If EN378 compliance is required please refer separately to EN378 for guidance.
- For room areas exceeding 250m^2, maximum system refrigerant shall be calculated with a room area of 250m^2.

① [Confirmation of installation space and floor area]

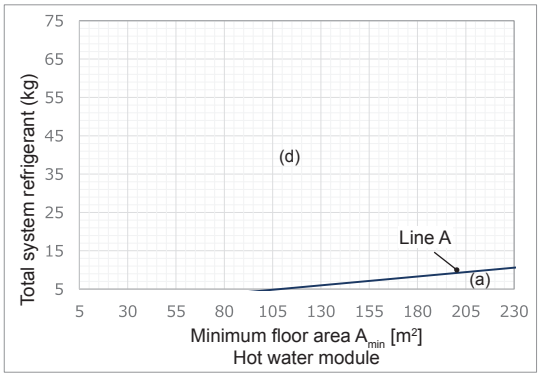
- Make sure that the installation height and floor area of each indoor unit type meet the installation height and floor area specified by the total system refrigerant amount.
- Please refer to the attached booklet for the numerical values of line A and line B in the graphs below.



Ceiling mounted type (include duct type)



Wall mount and under ceiling Type



Hot water module

	Other than the lowest basement floor	The lowest floor of the basement	LFL threshold
Area (a)	No safety measured required.	No safety measured required.	A large space of LFL/4 or less.
Area (b)	Leak detector required.	Leak detector and safety shut-off valve required.	A large space of LFL/4 - LFL/2.
Area (c)	Leak detector and safety shut-off valve required.	Installation not permitted.	A narrow space of LFL/2 or more.
Area (d)	Installation not permitted.	Installation not permitted.	Maximum allowable total refrigerant amount determined from LFL.

■Line A

Minimum floor area Amin [m2]	Total system refrigerant [kg]		
	Ceiling mounted type (include duct type)	Wall mount and under ceiling type	HWM
5	0.84	0.69	0.23
6	1.01	0.82	0.27
7	1.18	0.96	0.32
8	1.35	1.10	0.36
9	1.51	1.24	0.41
10	1.68	1.38	0.46
11	1.85	1.51	0.50
12	2.02	1.65	0.55
13	2.19	1.79	0.59
14	2.36	1.93	0.64
15	2.53	2.07	0.69
16	2.70	2.21	0.73
17	2.87	2.34	0.78
18	3.03	2.48	0.82
19	3.20	2.62	0.87
20	3.37	2.76	0.92
21	3.54	2.90	0.96
22	3.71	3.03	1.01
23	3.88	3.17	1.05
24	4.05	3.31	1.10
25	4.22	3.45	1.15
26	4.39	3.59	1.19
27	4.55	3.73	1.24
28	4.72	3.86	1.28
29	4.89	4.00	1.33
30	5.06	4.14	1.38
31	5.23	4.28	1.42
32	5.40	4.42	1.47
33	5.57	4.55	1.51
34	5.74	4.69	1.56
35	5.90	4.83	1.61
36	6.07	4.97	1.65
37	6.24	5.11	1.70
38	6.41	5.24	1.74
39	6.58	5.38	1.79
40	6.75	5.52	1.84
41	6.92	5.66	1.88
42	7.09	5.80	1.93
43	7.26	5.94	1.98
44	7.42	6.07	2.02
45	7.59	6.21	2.07
46	7.76	6.35	2.11
47	7.93	6.49	2.16
48	8.10	6.63	2.21
49	8.27	6.76	2.25
50	8.44	6.90	2.30

Minimum floor area Amin [m2]	Total system refrigerant [kg]		
	Ceiling mounted type (include duct type)	Wall mount and under ceiling type	HWM
55	9.28	7.59	2.53
60	10.13	8.28	2.76
65	10.97	8.97	2.99
70	11.81	9.67	3.22
75	12.66	10.36	3.45
80	13.50	11.05	3.68
85	14.35	11.74	3.91
90	15.19	12.43	4.14
95	16.04	13.12	4.37
100	16.88	13.81	4.60
110	18.57	15.19	5.06
120	20.26	16.57	5.52
130	21.95	17.95	5.98
140	23.63	19.34	6.44
150	25.32	20.72	6.90
160	27.01	22.10	7.36
170	28.70	23.48	7.82
180	30.39	24.86	8.28
190	32.08	26.24	8.74
200	33.77	27.63	9.21
210	35.45	29.01	9.67
220	37.14	30.39	10.13
230	38.83	31.77	10.59
240	40.52	33.15	11.05
250	42.21	34.53	11.51

■Line B

Minimum floor area Amin [m2]	Total system refrigerant [kg]		
	Ceiling mounted type (include duct type)	Wall mount and under ceiling type	HWM
5	1.68	1.38	—
6	2.02	1.65	—
7	2.36	1.93	—
8	2.70	2.21	—
9	3.03	2.48	—
10	3.37	2.76	—
11	3.71	3.03	—
12	4.05	3.31	—
13	4.39	3.59	—
14	4.72	3.86	—
15	5.06	4.14	—
16	5.40	4.42	—
17	5.74	4.69	—
18	6.07	4.97	—
19	6.41	5.24	—
20	6.75	5.52	—
21	7.09	5.80	—
22	7.42	6.07	—
23	7.76	6.35	—
24	8.10	6.63	—
25	8.44	6.90	—
26	8.78	7.18	—
27	9.11	7.46	—
28	9.45	7.73	—
29	9.79	8.01	—
30	10.13	8.28	—
31	10.46	8.56	—
32	10.80	8.84	—
33	11.14	9.11	—
34	11.48	9.39	—
35	11.81	9.67	—
36	12.15	9.94	—
37	12.49	10.22	—
38	12.83	10.49	—
39	13.17	10.77	—
40	13.50	11.05	—
41	13.84	11.32	—
42	14.18	11.60	—
43	14.52	11.88	—
44	14.85	12.15	—
45	15.19	12.43	—
46	15.53	12.70	—
47	15.87	12.98	—
48	16.20	13.26	—
49	16.54	13.53	—
50	16.88	13.81	—

Minimum floor area Amin [m2]	Total system refrigerant [kg]		
	Ceiling mounted type (include duct type)	Wall mount and under ceiling type	HWM
55	18.57	15.19	—
60	20.26	16.57	—
65	21.95	17.95	—
70	23.63	19.34	—
75	25.32	20.72	—
80	27.01	22.10	—
85	28.70	23.48	—
90	30.39	24.86	—
95	32.08	26.24	—
100	33.77	27.63	—
110	37.14	30.39	—
120	40.52	33.15	—
130	43.90	35.91	—
140	47.27	38.68	—
150	50.65	41.44	—
160	54.03	44.20	—
170	57.40	46.97	—
180	60.78	49.73	—
190	63.85	52.49	—
200	63.85	55.26	—
210	63.85	58.02	—
220	63.85	60.78	—
230	63.85	63.54	—
240	63.85	63.85	—
250	63.85	63.85	—

⚠WARNING

- The total amount of refrigerant in the system must be less than or equal to the maximum allowable total amount of refrigerant.
  The maximum allowable amount of refrigerant = (The number of connected indoor units) x 15.96 [kg] and the maximum is 63.85 [kg].
- Keep the installation height according to the indoor unit type.
  Ceiling-mounted unit (include Duct type.) : 2.2 m or more.
  For Duct type, both inlet and outlet shall be placed at least 2.2m.
  Inlet and outlet shall not be located above the unit.
  Wall-mounted and under ceiling unit : 1.8 m or more.
  But install the indoor unit at least 2.5 m above the floor level since otherwise the users may injure themselves or receive electric shocks if they poke their fingers or other objects into the indoor unit while the air conditioner is running.

Note

- The maximum total amount of refrigerant allowed depends on the area of the room the system serves and the room on the lowest floor of the basement.
- Please confirm that the condition for total system refrigerant amount is satisfied for [⑤ To determine the limit on the amount of additional refrigerant］.

If the installation becomes impossible in the in the previous pages, redesign the system again.

② [Safety measure]

This unit is equipped with a refrigerant leak detector for safety.
For each indoor unit, the number of safety devices varies depending on the installation floor, total system refrigerant amount, indoor unit installation height, and LFL value.
It's not necessary to install the safety devices when the air conditioning system is installed in a large space of LFL/4 or less.(each indoor room, outdoor area)

LD : Leak Detector
SV : Shut-off Valve
FS : Flow Selector

Area	Safety system	Safety measures		Safety system operation	subsequent status
(a)	No safety measures	0 pc.	-	No safety system operation.	Not applicable
(a)(b)	Leak Detector only.	1 pc.	LD	When a leak is detected, operation stops.	Operation cannot be continued.
(a)(b) (c)	Pump-down operation.	2 pcs.	LD, FS unit or SV unit	When a leak is detected, a system does Refrigerant recovery to Outdoor unit side by pump-down operation and closes all safety shut-off valves. After that, all systems stop.	Operation cannot be continued. (Refrigerant system is locked.)
(a)(b) (c)	Individual shut-off operation.	2 pcs.	LD, FS unit (single port) or SV unit	When a leak is detected, safety Shut-off Valves close only for the indoor units which refrigerant is leaked. After that, all systems stop.	Operation cannot be continued only for the indoor units which refrigerant is detected. Other indoor units can continue to operate.

⚠WARNING

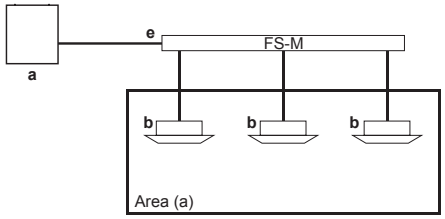
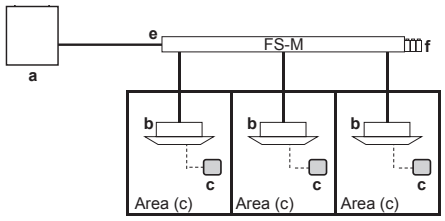
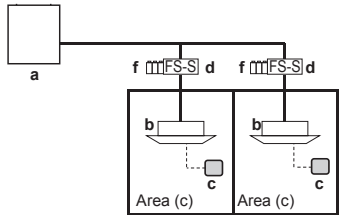
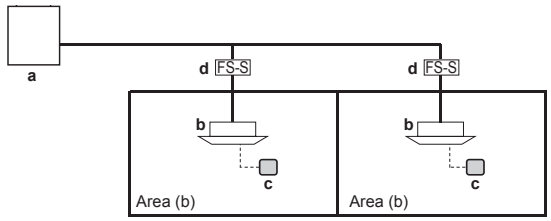
・For the refrigerant leak detector to function, the unit shall be powered on at all times after installation, except during service.
・Attach a battery kit to the FS unit and shutoff valve kit so that the refrigerant can be shut off even in the event of a power failure.
（Make sure there are no leaks before use as charging may not be in time during a continuous system power off.)

Note
・If there are multiple indoor units with different safety systems in refrigerant system, safety system behaviors may be different in each indoor unit.

(Installation patterns for each safety measure)
The table below shows installation example of safety measures for each safety system.
Position where Leak Detector and Flow Selector unit, Shut-off Valve unit can be installed is determined by room area, combination, indoor unit type and capacity, etc.

※ For FS units (multi-port type), 02 (individual shut-off) cannot be set.
[Each safety system and installation example]

FS : Flow Selector

CODE No. [107]	Installation example	Case
[00]		When installing in a room corresponding to area (a), set the CODE No. [107] to [00]. No additional safety measures are required.
[01]		When installing in a room corresponding to area (c), set the CODE No. [107] to [01] or [02]. Be sure to install a refrigerant leak detector. Be sure to connect the FS unit (or Shut-off Valve unit) and install the battery unit. When the CODE No. [107] is set to [01], the entire system will be stopped when refrigerant leakage is detected. ※ In the [01] setting and [02] setting of the CODE No. [107], the position where the FS unit (or Shut-off Valve unit) can be installed is different.
[02]		When installing in a room corresponding to area (c), set the CODE No. [107] to [01] or [02]. Be sure to install a refrigerant leak detector. Be sure to connect the FS unit (or Shut-off Valve unit) and install the battery unit. When the CODE No. [107] is set to [02], the corresponding indoor unit stops when refrigerant leakage is detected (other indoor units can continue operation). ※ Indoor units connected to the multi port type FS unit cannot be set to [02] for indoor DN[107]. ※ In the [01] setting and [02] setting of the CODE No. [107], the position where the FS unit (or Shut-off Valve unit) can be installed is different.
[03]		When the CODE No. [107] is set to [03] by area (b), the entire system stops when refrigerant leakage is detected. This setting can only be used in rooms that fall under area (b). Be sure to install a refrigerant leak detector.

a : Outdoor unit
b : Indoor unit
c : Leak detector
d : Single port type Flow Selector unit (or Shut-off Valve unit)
e : Multi port type Flow Selector unit
f : Battery unit

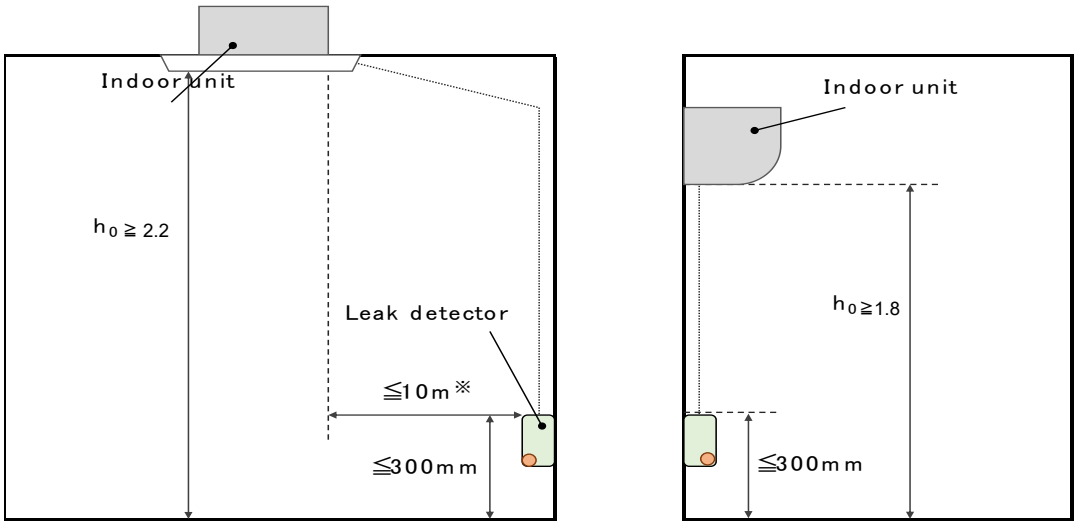
③ [Leak detector installation]

See Installation Manual included in leak detector for information on installing leak detector.
The leak detector implements safety measures to light up in red and to sound a buzzer, and will warn in case of a refrigerant leak.
For the leak detector installation of R32 air conditioning system, check the following before installing.

⚠WARNING

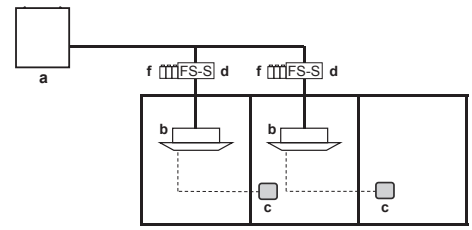
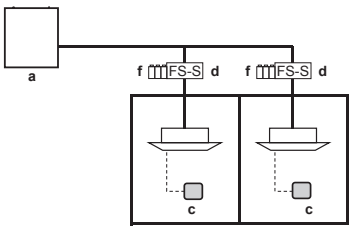
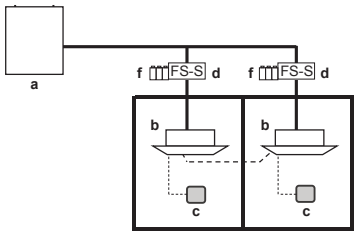
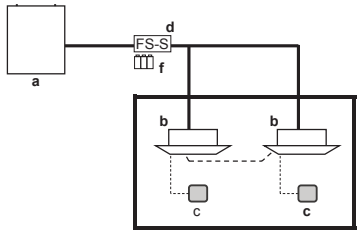
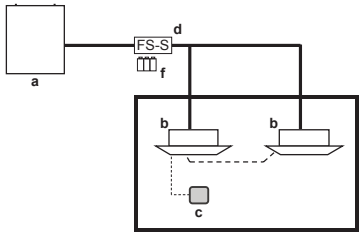
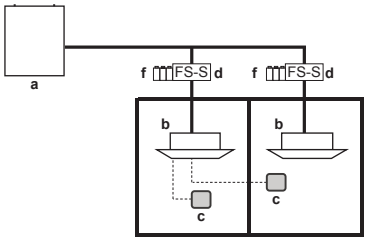
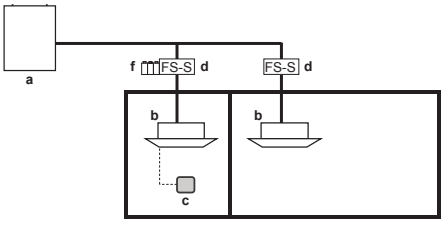
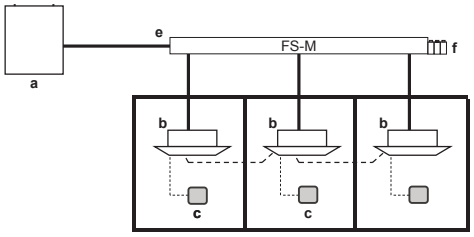
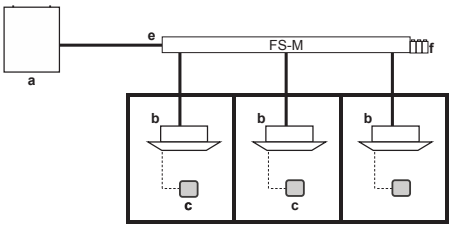
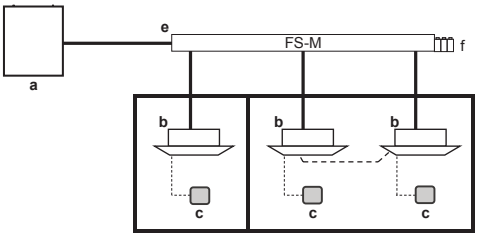
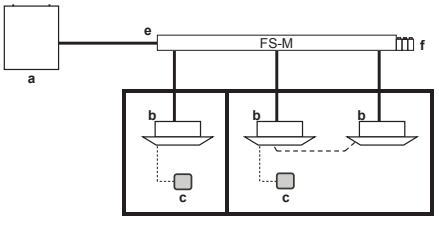
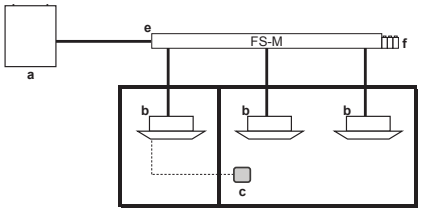
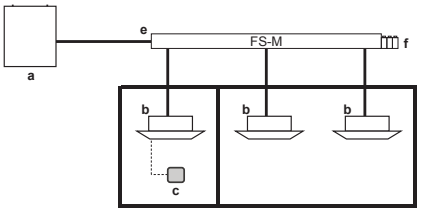
- The detector used as a safety device for the air conditioning system shall be used the specified Toshiba optional product.
- A leak detector installation shall be complied with the following requirements
  1,The leak detector shall be installed in each room that requires a safety device.
  2,The installation position shall be determined by the type and height of the indoor unit and the presence or absence of obstacles between the indoor unit and the leak detector.
- The leak detector shall be installed outside the unit within a height of 300 mm from the floor.
  If the indoor unit installation height is 1.5 m or less, the leak detector shall be installed inside the indoor unit.
- Leak Detector shall be located within 10 m horizontal distance in line sight of the unit and on a wall within the room in which the unit is installed, or 7 m, if not in line sight of the unit, and on a wall within the room in which the unit is installed. The distance from the unit to the Leak Detector shall be measured as the shortest horizontal unobstructed path between the unit and the nearest Leak Detector.
- The alarm shall always be 15 dB louder than the room background noise.
  Leak detector can generate a 65 dB alarm. (Sound pressure level, measured at a distance of 1 m from the alarm.) If the surrounding environment is noisy in a particular room, an external alarm (by local power supply) is recommended.
- This leak detector has output terminals to external ventilation and an external alarm. When taking safety measures using external ventilation or an external alarm, install according to the installation manual for the leak detector.
- Airflow of mechanical ventilation should be 130.3 m^3/h or more.
  If airflow is less than above, please contact your main dealer.
- When using external ventilation, the equipment shall be powered on at all times after installation, except during service.
  In order to operate the safety measures effectively, display the following on the equipment.
  "This unit is equipped with electrically powered safety measures. the unit shall be powered on at all times after installation, except during service."

【Installation positions of leak detectors】



※ It must be place with in a horizontal distance of 10 meters and on the wall in the room where the indoor unit is installed. However, when it does not enter the field of view on a straight line from the leak detector, it is with in 7 m at the shortest horizontal distance withe out obstacles and installed on the wall in the room where the indoor unit is installed.

(The examples for safety device installations)
The location of the leak detector varies depending on the safety system and the room.

	Incorrect	Correct	Case
1			Install the Leak Detector in the same room as the connected indoor unit.
2			Group setting of indoor unit across FS unit (or Shut-off Valve unit) is not possible.
3			Only one Leak Detector can be connected to indoor units with a group setting.
4			Multiple refrigerant Leak Detectors cannot be connected to one indoor unit.
5			Only one Leak Detector can be connected to indoor units with a group setting. Install each indoor unit in a separate room, and do not set the group if a Leak Detector is required. ※ Multi port type FS unit cannot be used by setting the CODE No. [107] to [02] (Individual shut-off).
6			Only one Leak Detector can be connected to indoor units with a group setting. If indoor units installed in the same room are used in the group setting, the Leak Detector to be connected should be one in one group. ※ Multi port type FS unit cannot be used by setting the CODE No. [107] to [02] (Individual shut-off).
7			Install the Leak Detector in the same room as the connected indoor unit. ※ Multi port type FS unit cannot be used by setting the CODE No. [107] to [02] (Individual shut-off).

a : Outdoor unit
b : Indoor unit
c : Leak detector

d : Single port type Flow Selector unit (or Shut-off Valve unit) FS : Flow Selector
e : Multi port type Flow Selector unit
f : Battery unit

④ [Safety Shut-off valve installation]

For recovery by pump-down and individual shutdown, the position where the safety shut-off valve can be installed differs depending on the indoor unit, safety shut-off valve type, etc.
The installation position shall be determined according to the following.

○ Pump-down operation setting (CODE No. [107])

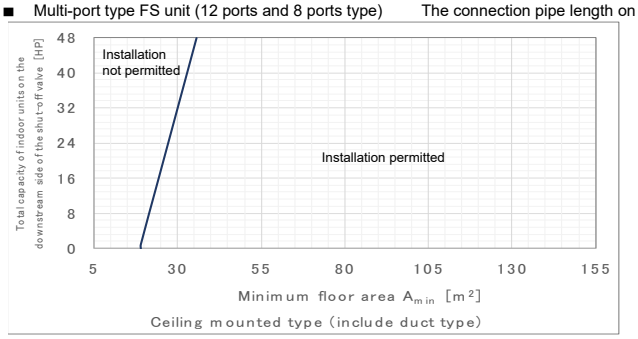
For pump-down operation, the following 3 types of shutoff valves can be connected.

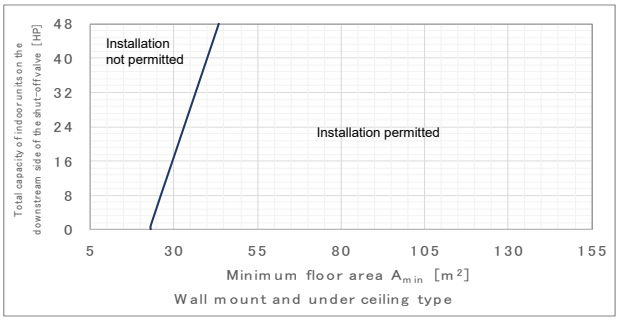
No.	Type	System
1	FS unit (Multi-port)	Heat recovery
2	FS unit (Single-port)	Heat recovery
3	Shut-off valve kit	Heat recovery, cooling only setting of heat recover, Heat pump

- Flow Selector (FS) unit
  The installation availability line differs depending on the FS unit type (multi / single, horsepower, number of ports) and the length of the connecting pipe.
  Example)

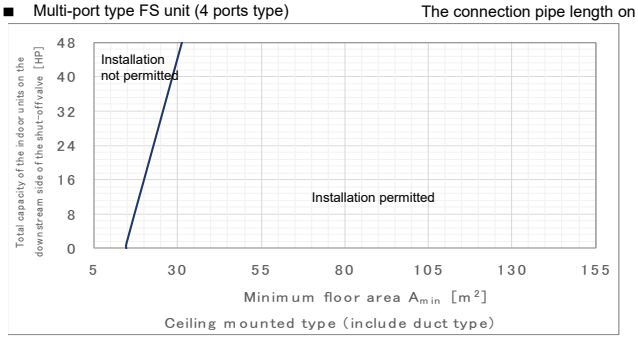
FS : Flow Selector unit

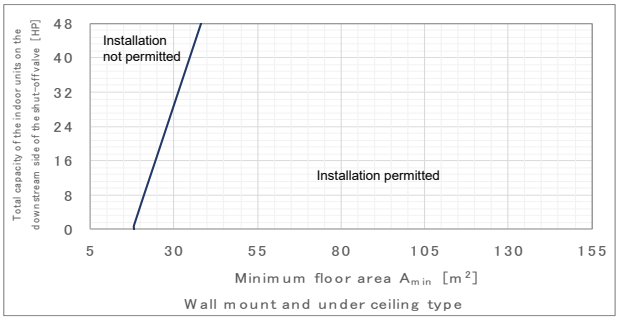
■ Multi-port type FS unit (12 ports and 8 ports type) The connection pipe length on the downstream side of the shut-off valve is 180m.





■ Multi-port type FS unit (4 ports type) The connection pipe length on the downstream side of the shut-off valve is 120m.



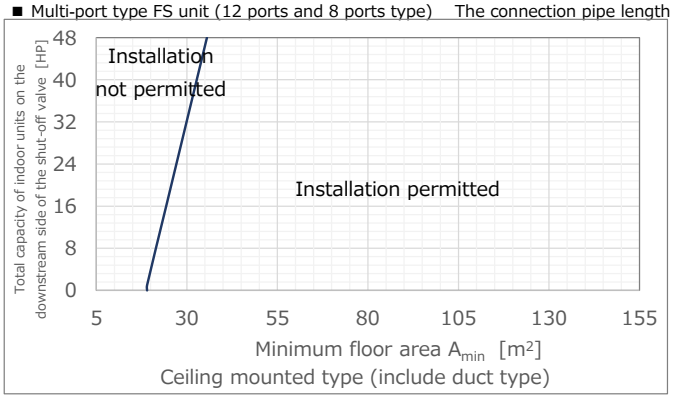


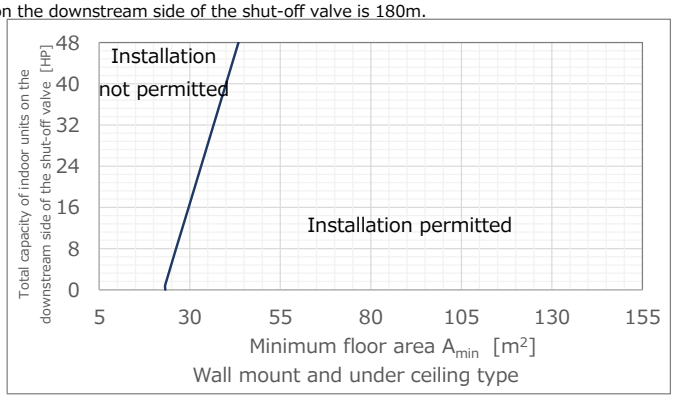
④ [Safety Shut-off valve installation]

○ Setting up the CODE No. [107] to 1 (Pump-down operation)

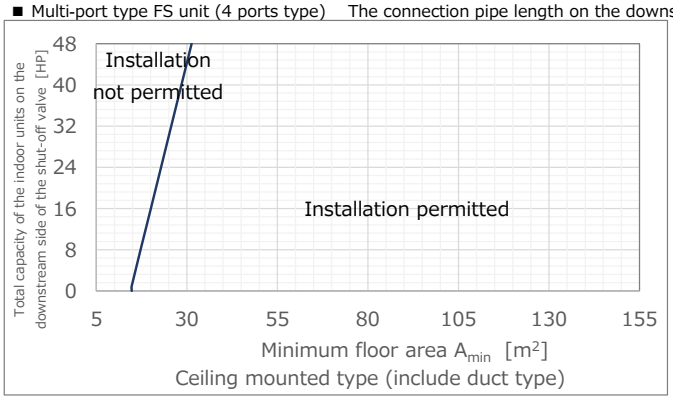
FS : Flow Selector unit

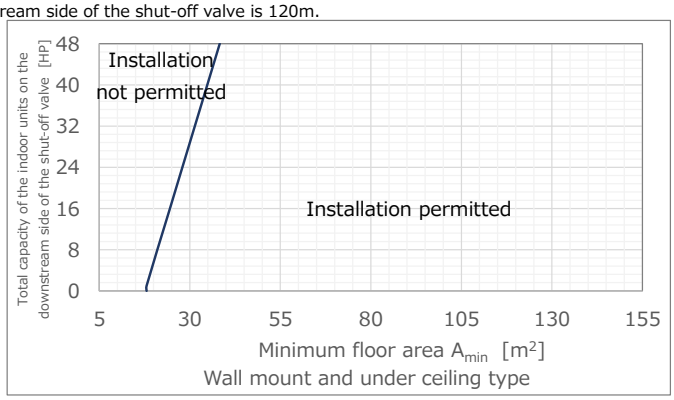
■ Multi-port type FS unit (12 ports and 8 ports type) The connection pipe length on the downstream side of the shut-off valve is 180m.



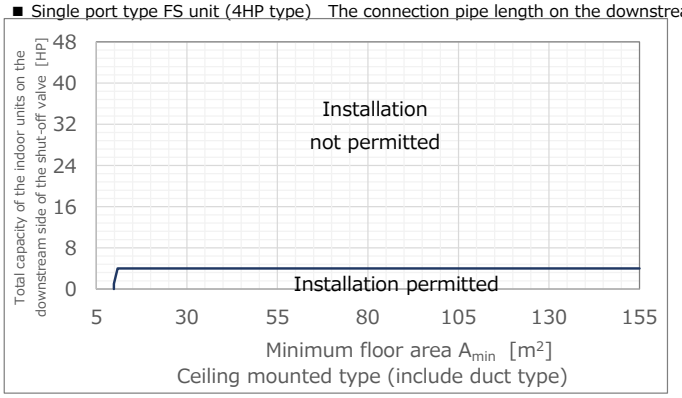


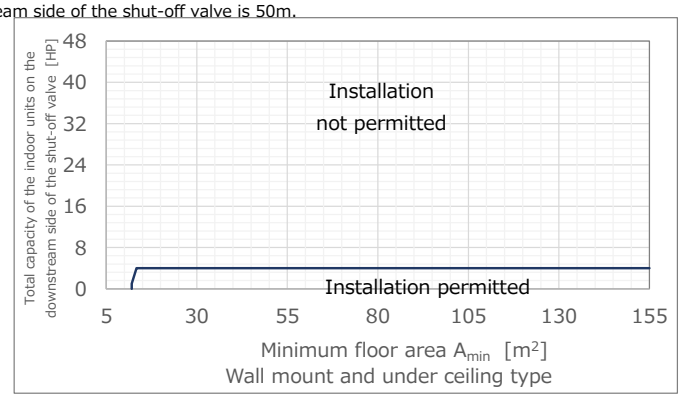
■ Multi-port type FS unit (4 ports type) The connection pipe length on the downstream side of the shut-off valve is 120m.



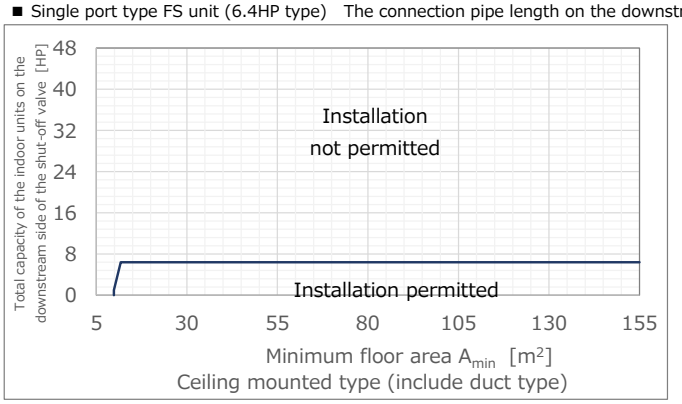


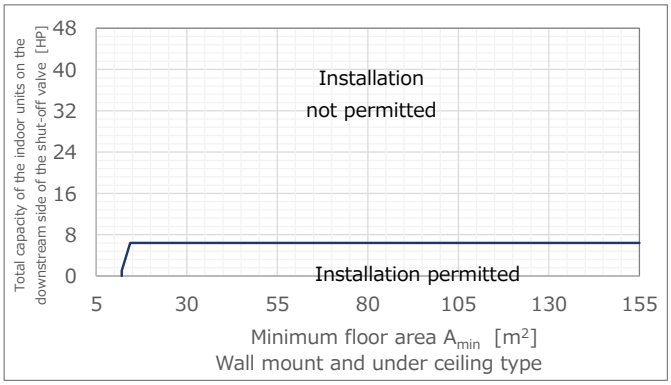
■ Single port type FS unit (4HP type) The connection pipe length on the downstream side of the shut-off valve is 50m.





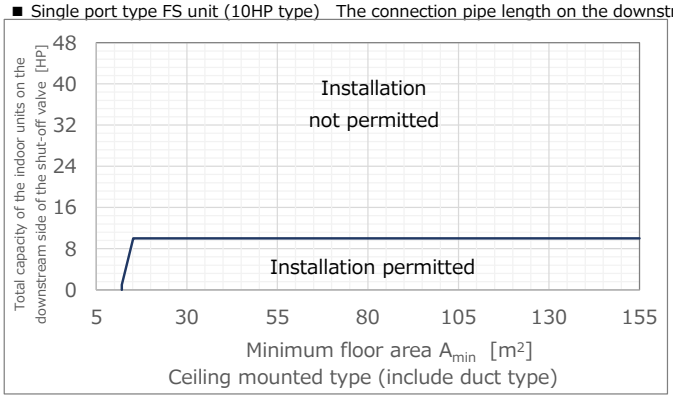
■ Single port type FS unit (6.4HP type) The connection pipe length on the downstream side of the shut-off valve is 50m.

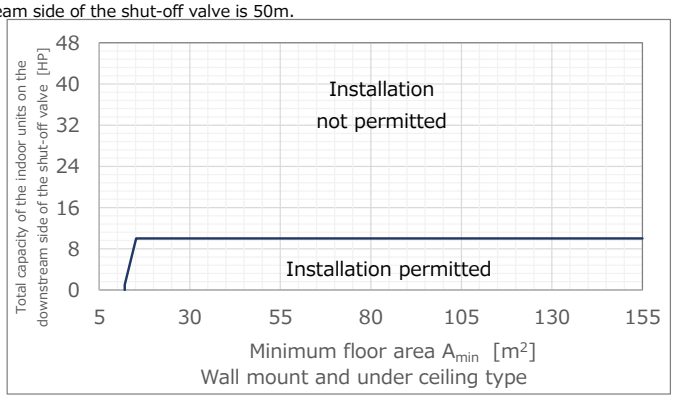




FS : Flow Selector unit

■ Single port type FS unit (10HP type)　The connection pipe length on the downstream side of the shut-off valve is 50m.





■ Multi-port type FS unit (12 ports and 8 ports type)
☐ Ceiling mounted type (include duct type)

FS : Flow Selector unit

Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]												
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]												
	1 HP	2 HP	3 HP	4 HP	5 HP	6 HP	7 HP	8 HP	9 HP	10 HP	12 HP	14 HP	16 HP
5	—	—	—	—	—	—	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—	—	—	—	—	—	—
7	—	—	—	—	—	—	—	—	—	—	—	—	—
8	23.7	18.8	13.8	—	—	—	—	—	—	—	—	—	—
9	37.9	32.9	28.0	23.0	18.0	13.0	—	—	—	—	—	—	—
10	52.1	47.1	42.1	37.1	32.2	27.2	22.2	17.2	12.2	—	—	—	—
11	66.3	61.3	56.3	51.3	46.3	41.4	36.4	31.4	26.4	21.4	11.4	—	—
12	80.5	75.5	70.5	65.5	60.5	55.5	50.5	45.6	40.6	35.6	25.6	15.6	—
13	94.6	89.7	84.7	79.7	74.7	69.7	64.7	59.7	54.8	49.8	39.8	29.8	19.9
14	108.8	103.8	98.8	93.9	88.9	83.9	78.9	73.9	68.9	63.9	54.0	44.0	34.0
15	123.0	118.0	113.0	108.0	103.0	98.1	93.1	88.1	83.1	78.1	68.2	58.2	48.2
16	137.2	132.2	127.2	122.2	117.2	112.2	107.3	102.3	97.3	92.3	82.3	72.4	62.4
17	151.3	146.4	141.4	136.4	131.4	126.4	121.4	116.4	111.5	106.5	96.5	86.5	76.6
18	165.5	160.5	155.6	150.6	145.6	140.6	135.6	130.6	125.6	120.7	110.7	100.7	90.7
19	179.7	174.7	169.7	164.7	159.8	154.8	149.8	144.8	139.8	134.8	124.9	114.9	104.9
20	180.0	180.0	180.0	178.9	173.9	169.0	164.0	159.0	154.0	149.0	139.0	129.1	119.1
21	180.0	180.0	180.0	180.0	180.0	180.0	178.1	173.2	168.2	163.2	153.2	143.2	133.3
22	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	177.4	167.4	157.4	147.5
23	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	171.6	161.6
24	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	175.8
25	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
26	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
27	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
28	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
29	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
30	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
31	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
32	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
33	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
34	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
35	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
36	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
37	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
38	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
39	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
40	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
41	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
42	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
43	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
44	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
45	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
46	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
47	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
48	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
49	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
50	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
55	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
60	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
65	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
70	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
75	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
80	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
85	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
90	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
95	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
100	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
110	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
120	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
130	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
140	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
150	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
160	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
170	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
180	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
190	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
200	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0

Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]							
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]							
	18 HP	20 HP	22 HP	24 HP	28 HP	32 HP	36 HP	38.4 HP
5	—	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—	—
7	—	—	—	—	—	—	—	—
8	—	—	—	—	—	—	—	—
9	—	—	—	—	—	—	—	—
10	—	—	—	—	—	—	—	—
11	—	—	—	—	—	—	—	—
12	—	—	—	—	—	—	—	—
13	—	—	—	—	—	—	—	—
14	24.1	14.1	—	—	—	—	—	—
15	38.2	28.3	18.3	—	—	—	—	—
16	52.4	42.4	32.5	22.5	—	—	—	—
17	66.6	56.6	46.6	36.7	16.7	—	—	—
18	80.8	70.8	60.8	50.9	30.9	11.0	—	—
19	94.9	85.0	75.0	65.0	45.1	25.1	—	—
20	109.1	99.2	89.2	79.2	59.3	39.3	19.4	—
21	123.3	113.3	103.4	93.4	73.4	53.5	33.6	21.6
22	137.5	127.5	117.5	107.6	87.6	67.7	47.7	35.8
23	151.7	141.7	131.7	121.7	101.8	81.9	61.9	50.0
24	165.8	155.9	145.9	135.9	116.0	96.0	76.1	64.1
25	180.0	170.0	160.1	150.1	130.2	110.2	90.3	78.3
26	180.0	180.0	174.2	164.3	144.3	124.4	104.5	92.5
27	180.0	180.0	180.0	178.5	158.5	138.6	118.6	106.7
28	180.0	180.0	180.0	180.0	172.7	152.7	132.8	120.8
29	180.0	180.0	180.0	180.0	180.0	166.9	147.0	135.0
30	180.0	180.0	180.0	180.0	180.0	180.0	161.2	149.2
31	180.0	180.0	180.0	180.0	180.0	180.0	175.3	163.4
32	180.0	180.0	180.0	180.0	180.0	180.0	180.0	177.6
33	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
34	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
35	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
36	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
37	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
38	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
39	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
40	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
41	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
42	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
43	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
44	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
45	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
46	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
47	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
48	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
49	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
50	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
55	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
60	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
65	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
70	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
75	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
80	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
85	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
90	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
95	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
100	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
110	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
120	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
130	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
140	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
150	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
160	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
170	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
180	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
190	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
200	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0

☐ Wall mount and under ceiling type

Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]												
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]												
	1 HP	2 HP	3 HP	4 HP	5 HP	6 HP	7 HP	8 HP	9 HP	10 HP	12 HP	14 HP	16 HP
5	—	—	—	—	—	—	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—	—	—	—	—	—	—
7	—	—	—	—	—	—	—	—	—	—	—	—	—
8	—	—	—	—	—	—	—	—	—	—	—	—	—
9	14.7	—	—	—	—	—	—	—	—	—	—	—	—
10	26.3	21.3	16.4	11.4	—	—	—	—	—	—	—	—	—
11	37.9	32.9	28.0	23.0	18.0	13.0	—	—	—	—	—	—	—
12	49.5	44.5	39.6	34.6	29.6	24.6	19.6	14.6	—	—	—	—	—
13	61.1	56.1	51.2	46.2	41.2	36.2	31.2	26.2	21.2	16.3	—	—	—
14	72.7	67.7	62.8	57.8	52.8	47.8	42.8	37.8	32.8	27.9	17.9	—	—
15	84.3	79.3	74.4	69.4	64.4	59.4	54.4	49.4	44.4	39.5	29.5	19.5	—
16	95.9	90.9	86.0	81.0	76.0	71.0	66.0	61.0	56.0	51.1	41.1	31.1	21.1
17	107.5	102.5	97.6	92.6	87.6	82.6	77.6	72.6	67.6	62.7	52.7	42.7	32.7
18	119.1	114.1	109.2	104.2	99.2	94.2	89.2	84.2	79.2	74.3	64.3	54.3	44.3
19	130.7	125.7	120.8	115.8	110.8	105.8	100.8	95.8	90.8	85.9	75.9	65.9	55.9
20	142.3	137.3	132.4	127.4	122.4	117.4	112.4	107.4	102.4	97.5	87.5	77.5	67.5
21	153.9	148.9	144.0	139.0	134.0	129.0	124.0	119.0	114.0	109.1	99.1	89.1	79.1
22	165.5	160.5	155.6	150.6	145.6	140.6	135.6	130.6	125.6	120.7	110.7	100.7	90.7
23	177.1	172.1	167.2	162.2	157.2	152.2	147.2	142.2	137.2	132.3	122.3	112.3	102.3
24	180.0	180.0	178.8	173.8	168.8	163.8	158.8	153.8	148.8	143.9	133.9	123.9	113.9
25	180.0	180.0	180.0	180.0	180.0	175.4	170.4	165.4	160.4	155.5	145.5	135.5	125.5
26	180.0	180.0	180.0	180.0	180.0	180.0	180.0	177.0	172.0	167.1	157.1	147.1	137.1
27	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	178.7	168.7	158.7	148.7
28	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	170.3	160.3
29	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	171.9
30	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
31	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
32	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
33	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
34	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
35	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
36	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
37	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
38	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
39	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
40	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
41	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
42	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
43	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
44	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
45	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
46	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
47	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
48	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
49	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
50	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
55	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
60	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
65	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
70	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
75	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
80	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
85	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
90	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
95	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
100	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
110	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
120	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
130	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
140	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
150	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
160	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
170	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
180	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
190	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
200	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0

Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]							
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]							
	18 HP	20 HP	22 HP	24 HP	28 HP	32 HP	36 HP	38.4 HP
5	—	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—	—
7	—	—	—	—	—	—	—	—
8	—	—	—	—	—	—	—	—
9	—	—	—	—	—	—	—	—
10	—	—	—	—	—	—	—	—
11	—	—	—	—	—	—	—	—
12	—	—	—	—	—	—	—	—
13	—	—	—	—	—	—	—	—
14	—	—	—	—	—	—	—	—
15	—	—	—	—	—	—	—	—
16	11.2	—	—	—	—	—	—	—
17	22.8	12.8	—	—	—	—	—	—
18	34.4	24.4	14.4	—	—	—	—	—
19	46.0	36.0	26.0	16.1	—	—	—	—
20	57.6	47.6	37.6	27.7	—	—	—	—
21	69.2	59.2	49.2	39.3	19.3	—	—	—
22	80.8	70.8	60.8	50.9	30.9	11.0	—	—
23	92.4	82.4	72.4	62.5	42.5	22.6	—	—
24	104.0	94.0	84.0	74.1	54.1	34.2	14.2	—
25	115.6	105.6	95.6	85.7	65.7	45.8	25.8	13.9
26	127.2	117.2	107.2	97.3	77.3	57.4	37.4	25.5
27	138.8	128.8	118.8	108.9	88.9	69.0	49.0	37.1
28	150.4	140.4	130.4	120.5	100.5	80.6	60.6	48.7
29	162.0	152.0	142.0	132.1	112.1	92.2	72.2	60.3
30	173.6	163.6	153.6	143.7	123.7	103.8	83.8	71.9
31	180.0	175.2	165.2	155.3	135.3	115.4	95.4	83.5
32	180.0	180.0	176.8	166.9	146.9	127.0	107.0	95.1
33	180.0	180.0	180.0	178.5	158.5	138.6	118.6	106.7
34	180.0	180.0	180.0	180.0	170.1	150.2	130.2	118.3
35	180.0	180.0	180.0	180.0	180.0	161.8	141.8	129.9
36	180.0	180.0	180.0	180.0	180.0	173.4	153.4	141.5
37	180.0	180.0	180.0	180.0	180.0	180.0	165.0	153.1
38	180.0	180.0	180.0	180.0	180.0	180.0	176.6	164.7
39	180.0	180.0	180.0	180.0	180.0	180.0	180.0	176.3
40	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
41	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
42	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
43	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
44	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
45	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
46	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
47	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
48	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
49	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
50	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
55	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
60	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
65	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
70	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
75	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
80	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
85	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
90	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
95	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
100	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
110	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
120	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
130	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
140	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
150	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
160	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
170	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
180	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
190	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
200	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0

■ Multi-port type FS unit (4 ports type)
□ Ceiling mounted type (include duct type)

FS : Flow Selector unit

Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]												
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]												
	1 HP	2 HP	3 HP	4 HP	5 HP	6 HP	7 HP	8 HP	9 HP	10 HP	12 HP	14 HP	16 HP
5	—	—	—	—	—	—	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—	—	—	—	—	—	—
7	9.6	4.6	—	—	—	—	—	—	—	—	—	—	—
8	23.7	18.8	13.8	8.8	3.8	—	—	—	—	—	—	—	—
9	37.9	32.9	28.0	23.0	18.0	13.0	8.0	3.0	—	—	—	—	—
10	52.1	47.1	42.1	37.1	32.2	27.2	22.2	17.2	12.2	7.2	—	—	—
11	66.3	61.3	56.3	51.3	46.3	41.4	36.4	31.4	26.4	21.4	11.4	1.5	—
12	80.5	75.5	70.5	65.5	60.5	55.5	50.5	45.6	40.6	35.6	25.6	15.6	5.7
13	94.6	89.7	84.7	79.7	74.7	69.7	64.7	59.7	54.8	49.8	39.8	29.8	19.9
14	108.8	103.8	98.8	93.9	88.9	83.9	78.9	73.9	68.9	63.9	54.0	44.0	34.0
15	120.0	118.0	113.0	108.0	103.0	98.1	93.1	88.1	83.1	78.1	68.2	58.2	48.2
16	120.0	120.0	120.0	120.0	117.2	112.2	107.3	102.3	97.3	92.3	82.3	72.4	62.4
17	120.0	120.0	120.0	120.0	120.0	120.0	120.0	116.4	111.5	106.5	96.5	86.5	76.6
18	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	110.7	100.7	90.7
19	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	114.9	104.9
20	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	119.1
21	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
22	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
23	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
24	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
25	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
26	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
27	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
28	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
29	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
30	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
31	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
32	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
33	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
34	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
35	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
36	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
37	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
38	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
39	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
40	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
41	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
42	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
43	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
44	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
45	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
46	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
47	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
48	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
49	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
50	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
55	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
60	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
65	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
70	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
75	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
80	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
85	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
90	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
95	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
100	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
110	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
120	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
130	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
140	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
150	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
160	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
170	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
180	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
190	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
200	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0

Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]				
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]				
	18 HP	20 HP	22 HP	24 HP	25.6 HP
5	—	—	—	—	—
6	—	—	—	—	—
7	—	—	—	—	—
8	—	—	—	—	—
9	—	—	—	—	—
10	—	—	—	—	—
11	—	—	—	—	—
12	—	—	—	—	—
13	9.9	—	—	—	—
14	24.1	14.1	4.1	—	—
15	38.2	28.3	18.3	8.3	0.3
16	52.4	42.4	32.5	22.5	14.5
17	66.6	56.6	46.6	36.7	28.7
18	80.8	70.8	60.8	50.9	42.9
19	94.9	85.0	75.0	65.0	57.1
20	109.1	99.2	89.2	79.2	71.2
21	120.0	113.3	103.4	93.4	85.4
22	120.0	120.0	117.5	107.6	99.6
23	120.0	120.0	120.0	120.0	113.8
24	120.0	120.0	120.0	120.0	120.0
25	120.0	120.0	120.0	120.0	120.0
26	120.0	120.0	120.0	120.0	120.0
27	120.0	120.0	120.0	120.0	120.0
28	120.0	120.0	120.0	120.0	120.0
29	120.0	120.0	120.0	120.0	120.0
30	120.0	120.0	120.0	120.0	120.0
31	120.0	120.0	120.0	120.0	120.0
32	120.0	120.0	120.0	120.0	120.0
33	120.0	120.0	120.0	120.0	120.0
34	120.0	120.0	120.0	120.0	120.0
35	120.0	120.0	120.0	120.0	120.0
36	120.0	120.0	120.0	120.0	120.0
37	120.0	120.0	120.0	120.0	120.0
38	120.0	120.0	120.0	120.0	120.0
39	120.0	120.0	120.0	120.0	120.0
40	120.0	120.0	120.0	120.0	120.0
41	120.0	120.0	120.0	120.0	120.0
42	120.0	120.0	120.0	120.0	120.0
43	120.0	120.0	120.0	120.0	120.0
44	120.0	120.0	120.0	120.0	120.0
45	120.0	120.0	120.0	120.0	120.0
46	120.0	120.0	120.0	120.0	120.0
47	120.0	120.0	120.0	120.0	120.0
48	120.0	120.0	120.0	120.0	120.0
49	120.0	120.0	120.0	120.0	120.0
50	120.0	120.0	120.0	120.0	120.0
55	120.0	120.0	120.0	120.0	120.0
60	120.0	120.0	120.0	120.0	120.0
65	120.0	120.0	120.0	120.0	120.0
70	120.0	120.0	120.0	120.0	120.0
75	120.0	120.0	120.0	120.0	120.0
80	120.0	120.0	120.0	120.0	120.0
85	120.0	120.0	120.0	120.0	120.0
90	120.0	120.0	120.0	120.0	120.0
95	120.0	120.0	120.0	120.0	120.0
100	120.0	120.0	120.0	120.0	120.0
110	120.0	120.0	120.0	120.0	120.0
120	120.0	120.0	120.0	120.0	120.0
130	120.0	120.0	120.0	120.0	120.0
140	120.0	120.0	120.0	120.0	120.0
150	120.0	120.0	120.0	120.0	120.0
160	120.0	120.0	120.0	120.0	120.0
170	120.0	120.0	120.0	120.0	120.0
180	120.0	120.0	120.0	120.0	120.0
190	120.0	120.0	120.0	120.0	120.0
200	120.0	120.0	120.0	120.0	120.0

☐ Wall mount and under ceiling type

Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]												
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]												
	1 HP	2 HP	3 HP	4 HP	5 HP	6 HP	7 HP	8 HP	9 HP	10 HP	12 HP	14 HP	16 HP
5	—	—	—	—	—	—	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—	—	—	—	—	—	—
7	—	—	—	—	—	—	—	—	—	—	—	—	—
8	3.1	—	—	—	—	—	—	—	—	—	—	—	—
9	14.7	9.7	4.8	—	—	—	—	—	—	—	—	—	—
10	26.3	21.3	16.4	11.4	6.4	1.4	—	—	—	—	—	—	—
11	37.9	32.9	28.0	23.0	18.0	13.0	8.0	3.0	—	—	—	—	—
12	49.5	44.5	39.6	34.6	29.6	24.6	19.6	14.6	9.6	4.7	—	—	—
13	61.1	56.1	51.2	46.2	41.2	36.2	31.2	26.2	21.2	16.3	6.3	—	—
14	72.7	67.7	62.8	57.8	52.8	47.8	42.8	37.8	32.8	27.9	17.9	7.9	—
15	84.3	79.3	74.4	69.4	64.4	59.4	54.4	49.4	44.4	39.5	29.5	19.5	9.5
16	95.9	90.9	86.0	81.0	76.0	71.0	66.0	61.0	56.0	51.1	41.1	31.1	21.1
17	107.5	102.5	97.6	92.6	87.6	82.6	77.6	72.6	67.6	62.7	52.7	42.7	32.7
18	119.1	114.1	109.2	104.2	99.2	94.2	89.2	84.2	79.2	74.3	64.3	54.3	44.3
19	120.0	120.0	120.0	115.8	110.8	105.8	100.8	95.8	90.8	85.9	75.9	65.9	55.9
20	120.0	120.0	120.0	120.0	120.0	117.4	112.4	107.4	102.4	97.5	87.5	77.5	67.5
21	120.0	120.0	120.0	120.0	120.0	120.0	120.0	119.0	114.0	109.1	99.1	89.1	79.1
22	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	110.7	100.7	90.7
23	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	112.3	102.3
24	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	113.9
25	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
26	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
27	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
28	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
29	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
30	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
31	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
32	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
33	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
34	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
35	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
36	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
37	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
38	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
39	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
40	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
41	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
42	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
43	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
44	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
45	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
46	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
47	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
48	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
49	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
50	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
55	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
60	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
65	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
70	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
75	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
80	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
85	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
90	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
95	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
100	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
110	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
120	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
130	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
140	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
150	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
160	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
170	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
180	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
190	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
200	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0

Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]				
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]				
	18 HP	20 HP	22 HP	24 HP	25.6 HP
5	—	—	—	—	—
6	—	—	—	—	—
7	—	—	—	—	—
8	—	—	—	—	—
9	—	—	—	—	—
10	—	—	—	—	—
11	—	—	—	—	—
12	—	—	—	—	—
13	—	—	—	—	—
14	—	—	—	—	—
15	—	—	—	—	—
16	11.2	1.2	—	—	—
17	22.8	12.8	2.8	—	—
18	34.4	24.4	14.4	4.5	—
19	46.0	36.0	26.0	16.1	8.1
20	57.6	47.6	37.6	27.7	19.7
21	69.2	59.2	49.2	39.3	31.3
22	80.8	70.8	60.8	50.9	42.9
23	92.4	82.4	72.4	62.5	54.5
24	104.0	94.0	84.0	74.1	66.1
25	115.6	105.6	95.6	85.7	77.7
26	120.0	117.2	107.2	97.3	89.3
27	120.0	120.0	118.8	108.9	100.9
28	120.0	120.0	120.0	120.0	112.5
29	120.0	120.0	120.0	120.0	120.0
30	120.0	120.0	120.0	120.0	120.0
31	120.0	120.0	120.0	120.0	120.0
32	120.0	120.0	120.0	120.0	120.0
33	120.0	120.0	120.0	120.0	120.0
34	120.0	120.0	120.0	120.0	120.0
35	120.0	120.0	120.0	120.0	120.0
36	120.0	120.0	120.0	120.0	120.0
37	120.0	120.0	120.0	120.0	120.0
38	120.0	120.0	120.0	120.0	120.0
39	120.0	120.0	120.0	120.0	120.0
40	120.0	120.0	120.0	120.0	120.0
41	120.0	120.0	120.0	120.0	120.0
42	120.0	120.0	120.0	120.0	120.0
43	120.0	120.0	120.0	120.0	120.0
44	120.0	120.0	120.0	120.0	120.0
45	120.0	120.0	120.0	120.0	120.0
46	120.0	120.0	120.0	120.0	120.0
47	120.0	120.0	120.0	120.0	120.0
48	120.0	120.0	120.0	120.0	120.0
49	120.0	120.0	120.0	120.0	120.0
50	120.0	120.0	120.0	120.0	120.0
55	120.0	120.0	120.0	120.0	120.0
60	120.0	120.0	120.0	120.0	120.0
65	120.0	120.0	120.0	120.0	120.0
70	120.0	120.0	120.0	120.0	120.0
75	120.0	120.0	120.0	120.0	120.0
80	120.0	120.0	120.0	120.0	120.0
85	120.0	120.0	120.0	120.0	120.0
90	120.0	120.0	120.0	120.0	120.0
95	120.0	120.0	120.0	120.0	120.0
100	120.0	120.0	120.0	120.0	120.0
110	120.0	120.0	120.0	120.0	120.0
120	120.0	120.0	120.0	120.0	120.0
130	120.0	120.0	120.0	120.0	120.0
140	120.0	120.0	120.0	120.0	120.0
150	120.0	120.0	120.0	120.0	120.0
160	120.0	120.0	120.0	120.0	120.0
170	120.0	120.0	120.0	120.0	120.0
180	120.0	120.0	120.0	120.0	120.0
190	120.0	120.0	120.0	120.0	120.0
200	120.0	120.0	120.0	120.0	120.0

FS : Flow Selector unit

■ Single port type FS unit (4HP and 6.4HP type)
□ Ceiling mounted type (include duct type)

Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]						
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]						
	1 HP	2 HP	3 HP	4 HP	5 HP	6 HP	6.4 HP
5	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—
7	9.6	4.6	—	—	—	—	—
8	23.7	18.8	13.8	8.8	3.8	—	—
9	37.9	32.9	28.0	23.0	18.0	13.0	11.0
10	50.0	47.1	42.1	37.1	32.2	27.2	25.2
11	50.0	50.0	50.0	50.0	46.3	41.4	39.4
12	50.0	50.0	50.0	50.0	50.0	50.0	50.0
13	50.0	50.0	50.0	50.0	50.0	50.0	50.0
14	50.0	50.0	50.0	50.0	50.0	50.0	50.0
15	50.0	50.0	50.0	50.0	50.0	50.0	50.0
16	50.0	50.0	50.0	50.0	50.0	50.0	50.0
17	50.0	50.0	50.0	50.0	50.0	50.0	50.0
18	50.0	50.0	50.0	50.0	50.0	50.0	50.0
19	50.0	50.0	50.0	50.0	50.0	50.0	50.0
20	50.0	50.0	50.0	50.0	50.0	50.0	50.0
21	50.0	50.0	50.0	50.0	50.0	50.0	50.0
22	50.0	50.0	50.0	50.0	50.0	50.0	50.0
23	50.0	50.0	50.0	50.0	50.0	50.0	50.0
24	50.0	50.0	50.0	50.0	50.0	50.0	50.0
25	50.0	50.0	50.0	50.0	50.0	50.0	50.0
26	50.0	50.0	50.0	50.0	50.0	50.0	50.0
27	50.0	50.0	50.0	50.0	50.0	50.0	50.0
28	50.0	50.0	50.0	50.0	50.0	50.0	50.0
29	50.0	50.0	50.0	50.0	50.0	50.0	50.0
30	50.0	50.0	50.0	50.0	50.0	50.0	50.0
31	50.0	50.0	50.0	50.0	50.0	50.0	50.0
32	50.0	50.0	50.0	50.0	50.0	50.0	50.0
33	50.0	50.0	50.0	50.0	50.0	50.0	50.0
34	50.0	50.0	50.0	50.0	50.0	50.0	50.0
35	50.0	50.0	50.0	50.0	50.0	50.0	50.0
36	50.0	50.0	50.0	50.0	50.0	50.0	50.0
37	50.0	50.0	50.0	50.0	50.0	50.0	50.0
38	50.0	50.0	50.0	50.0	50.0	50.0	50.0
39	50.0	50.0	50.0	50.0	50.0	50.0	50.0
40	50.0	50.0	50.0	50.0	50.0	50.0	50.0
41	50.0	50.0	50.0	50.0	50.0	50.0	50.0
42	50.0	50.0	50.0	50.0	50.0	50.0	50.0
43	50.0	50.0	50.0	50.0	50.0	50.0	50.0
44	50.0	50.0	50.0	50.0	50.0	50.0	50.0
45	50.0	50.0	50.0	50.0	50.0	50.0	50.0
46	50.0	50.0	50.0	50.0	50.0	50.0	50.0
47	50.0	50.0	50.0	50.0	50.0	50.0	50.0
48	50.0	50.0	50.0	50.0	50.0	50.0	50.0
49	50.0	50.0	50.0	50.0	50.0	50.0	50.0
50	50.0	50.0	50.0	50.0	50.0	50.0	50.0
55	50.0	50.0	50.0	50.0	50.0	50.0	50.0
60	50.0	50.0	50.0	50.0	50.0	50.0	50.0
65	50.0	50.0	50.0	50.0	50.0	50.0	50.0
70	50.0	50.0	50.0	50.0	50.0	50.0	50.0
75	50.0	50.0	50.0	50.0	50.0	50.0	50.0
80	50.0	50.0	50.0	50.0	50.0	50.0	50.0
85	50.0	50.0	50.0	50.0	50.0	50.0	50.0
90	50.0	50.0	50.0	50.0	50.0	50.0	50.0
95	50.0	50.0	50.0	50.0	50.0	50.0	50.0
100	50.0	50.0	50.0	50.0	50.0	50.0	50.0
110	50.0	50.0	50.0	50.0	50.0	50.0	50.0
120	50.0	50.0	50.0	50.0	50.0	50.0	50.0
130	50.0	50.0	50.0	50.0	50.0	50.0	50.0
140	50.0	50.0	50.0	50.0	50.0	50.0	50.0
150	50.0	50.0	50.0	50.0	50.0	50.0	50.0
160	50.0	50.0	50.0	50.0	50.0	50.0	50.0
170	50.0	50.0	50.0	50.0	50.0	50.0	50.0
180	50.0	50.0	50.0	50.0	50.0	50.0	50.0
190	50.0	50.0	50.0	50.0	50.0	50.0	50.0
200	50.0	50.0	50.0	50.0	50.0	50.0	50.0

☐ Wall mount and under ceiling type

Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]						
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]						
	1 HP	2 HP	3 HP	4 HP	5 HP	6 HP	6.4 HP
5	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—
7	—	—	—	—	—	—	—
8	3.1	—	—	—	—	—	—
9	14.7	9.7	4.8	—	—	—	—
10	26.3	21.3	16.4	11.4	6.4	1.4	—
11	37.9	32.9	28.0	23.0	18.0	13.0	11.0
12	49.5	44.5	39.6	34.6	29.6	24.6	22.6
13	50.0	50.0	50.0	46.2	41.2	36.2	34.2
14	50.0	50.0	50.0	50.0	50.0	47.8	45.8
15	50.0	50.0	50.0	50.0	50.0	50.0	50.0
16	50.0	50.0	50.0	50.0	50.0	50.0	50.0
17	50.0	50.0	50.0	50.0	50.0	50.0	50.0
18	50.0	50.0	50.0	50.0	50.0	50.0	50.0
19	50.0	50.0	50.0	50.0	50.0	50.0	50.0
20	50.0	50.0	50.0	50.0	50.0	50.0	50.0
21	50.0	50.0	50.0	50.0	50.0	50.0	50.0
22	50.0	50.0	50.0	50.0	50.0	50.0	50.0
23	50.0	50.0	50.0	50.0	50.0	50.0	50.0
24	50.0	50.0	50.0	50.0	50.0	50.0	50.0
25	50.0	50.0	50.0	50.0	50.0	50.0	50.0
26	50.0	50.0	50.0	50.0	50.0	50.0	50.0
27	50.0	50.0	50.0	50.0	50.0	50.0	50.0
28	50.0	50.0	50.0	50.0	50.0	50.0	50.0
29	50.0	50.0	50.0	50.0	50.0	50.0	50.0
30	50.0	50.0	50.0	50.0	50.0	50.0	50.0
31	50.0	50.0	50.0	50.0	50.0	50.0	50.0
32	50.0	50.0	50.0	50.0	50.0	50.0	50.0
33	50.0	50.0	50.0	50.0	50.0	50.0	50.0
34	50.0	50.0	50.0	50.0	50.0	50.0	50.0
35	50.0	50.0	50.0	50.0	50.0	50.0	50.0
36	50.0	50.0	50.0	50.0	50.0	50.0	50.0
37	50.0	50.0	50.0	50.0	50.0	50.0	50.0
38	50.0	50.0	50.0	50.0	50.0	50.0	50.0
39	50.0	50.0	50.0	50.0	50.0	50.0	50.0
40	50.0	50.0	50.0	50.0	50.0	50.0	50.0
41	50.0	50.0	50.0	50.0	50.0	50.0	50.0
42	50.0	50.0	50.0	50.0	50.0	50.0	50.0
43	50.0	50.0	50.0	50.0	50.0	50.0	50.0
44	50.0	50.0	50.0	50.0	50.0	50.0	50.0
45	50.0	50.0	50.0	50.0	50.0	50.0	50.0
46	50.0	50.0	50.0	50.0	50.0	50.0	50.0
47	50.0	50.0	50.0	50.0	50.0	50.0	50.0
48	50.0	50.0	50.0	50.0	50.0	50.0	50.0
49	50.0	50.0	50.0	50.0	50.0	50.0	50.0
50	50.0	50.0	50.0	50.0	50.0	50.0	50.0
55	50.0	50.0	50.0	50.0	50.0	50.0	50.0
60	50.0	50.0	50.0	50.0	50.0	50.0	50.0
65	50.0	50.0	50.0	50.0	50.0	50.0	50.0
70	50.0	50.0	50.0	50.0	50.0	50.0	50.0
75	50.0	50.0	50.0	50.0	50.0	50.0	50.0
80	50.0	50.0	50.0	50.0	50.0	50.0	50.0
85	50.0	50.0	50.0	50.0	50.0	50.0	50.0
90	50.0	50.0	50.0	50.0	50.0	50.0	50.0
95	50.0	50.0	50.0	50.0	50.0	50.0	50.0
100	50.0	50.0	50.0	50.0	50.0	50.0	50.0
110	50.0	50.0	50.0	50.0	50.0	50.0	50.0
120	50.0	50.0	50.0	50.0	50.0	50.0	50.0
130	50.0	50.0	50.0	50.0	50.0	50.0	50.0
140	50.0	50.0	50.0	50.0	50.0	50.0	50.0
150	50.0	50.0	50.0	50.0	50.0	50.0	50.0
160	50.0	50.0	50.0	50.0	50.0	50.0	50.0
170	50.0	50.0	50.0	50.0	50.0	50.0	50.0
180	50.0	50.0	50.0	50.0	50.0	50.0	50.0
190	50.0	50.0	50.0	50.0	50.0	50.0	50.0
200	50.0	50.0	50.0	50.0	50.0	50.0	50.0

■ Single port type FS unit (10HP type)
□ Ceiling mounted type (include duct type)

FS : Flow Selector unit

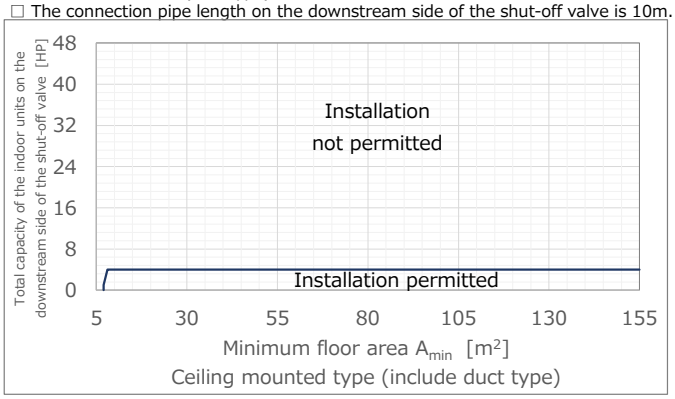
Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]									
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]									
	1 HP	2 HP	3 HP	4 HP	5 HP	6 HP	7 HP	8 HP	9 HP	10 HP
5	—	—	—	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—	—	—	—
7	5.9	2.8	—	—	—	—	—	—	—	—
8	14.6	11.6	8.5	5.4	2.3	—	—	—	—	—
9	23.4	20.3	17.2	14.2	11.1	8.0	4.9	1.8	—	—
10	32.1	29.1	26.0	22.9	19.8	16.7	13.7	10.6	7.5	4.4
11	40.9	37.8	34.7	31.6	28.6	25.5	22.4	19.3	16.3	13.2
12	49.6	46.5	43.5	40.4	37.3	34.2	31.2	28.1	25.0	21.9
13	50.0	50.0	50.0	49.1	46.1	43.0	39.9	36.8	33.8	30.7
14	50.0	50.0	50.0	50.0	50.0	50.0	48.7	45.6	42.5	39.4
15	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	48.2
16	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
17	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
18	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
19	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
20	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
21	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
22	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
23	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
24	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
25	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
26	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
27	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
28	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
29	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
30	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
31	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
32	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
33	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
34	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
35	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
36	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
37	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
38	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
39	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
40	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
41	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
42	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
43	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
44	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
45	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
46	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
47	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
48	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
49	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
50	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
55	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
60	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
65	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
70	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
75	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
80	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
85	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
90	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
95	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
100	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
110	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
120	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
130	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
140	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
150	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
160	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
170	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
180	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
190	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
200	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0

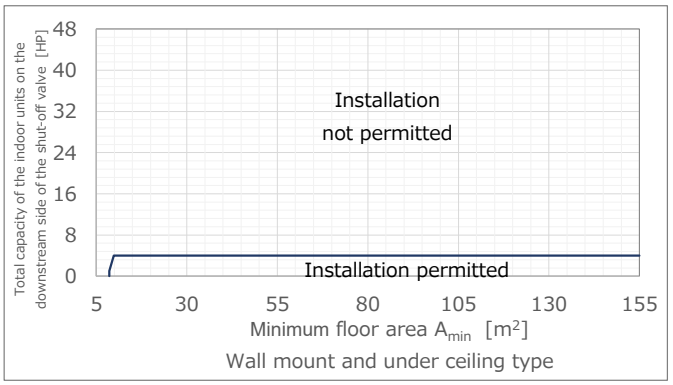
☐ Wall mount and under ceiling type

Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]									
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]									
	1 HP	2 HP	3 HP	4 HP	5 HP	6 HP	7 HP	8 HP	9 HP	10 HP
5	—	—	—	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—	—	—	—
7	—	—	—	—	—	—	—	—	—	—
8	1.9	—	—	—	—	—	—	—	—	—
9	9.1	6.0	2.9	—	—	—	—	—	—	—
10	16.2	13.1	10.1	7.0	3.9	0.8	—	—	—	—
11	23.4	20.3	17.2	14.2	11.1	8.0	4.9	1.8	—	—
12	30.5	27.5	24.4	21.3	18.2	15.2	12.1	9.0	5.9	2.9
13	37.7	34.6	31.5	28.5	25.4	22.3	19.2	16.2	13.1	10.0
14	44.9	41.8	38.7	35.6	32.5	29.5	26.4	23.3	20.2	17.2
15	50.0	48.9	45.9	42.8	39.7	36.6	33.6	30.5	27.4	24.3
16	50.0	50.0	50.0	49.9	46.9	43.8	40.7	37.6	34.6	31.5
17	50.0	50.0	50.0	50.0	50.0	50.0	47.9	44.8	41.7	38.6
18	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	48.9	45.8
19	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
20	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
21	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
22	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
23	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
24	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
25	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
26	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
27	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
28	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
29	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
30	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
31	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
32	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
33	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
34	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
35	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
36	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
37	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
38	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
39	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
40	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
41	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
42	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
43	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
44	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
45	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
46	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
47	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
48	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
49	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
50	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
55	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
60	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
65	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
70	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
75	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
80	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
85	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
90	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
95	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
100	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
110	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
120	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
130	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
140	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
150	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
160	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
170	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
180	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
190	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
200	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0

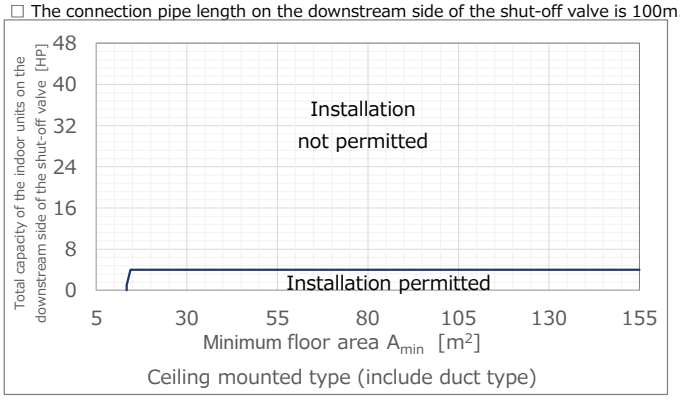
■ Shut-off valve unit (4HP type)

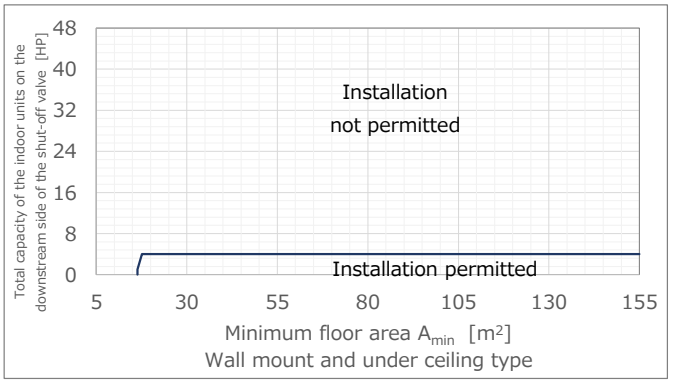
☐ The connection pipe length on the downstream side of the shut-off valve is 10m.



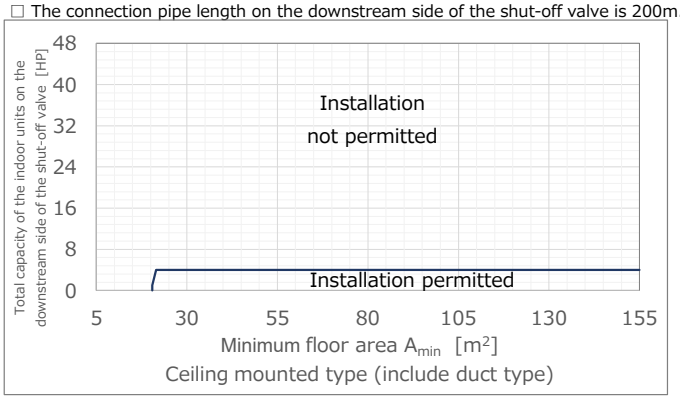


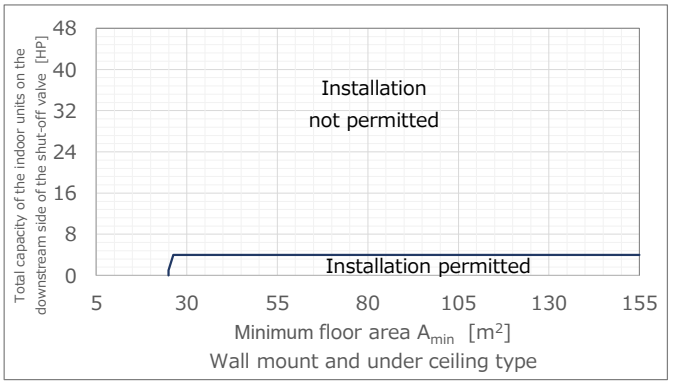
☐ The connection pipe length on the downstream side of the shut-off valve is 100m.



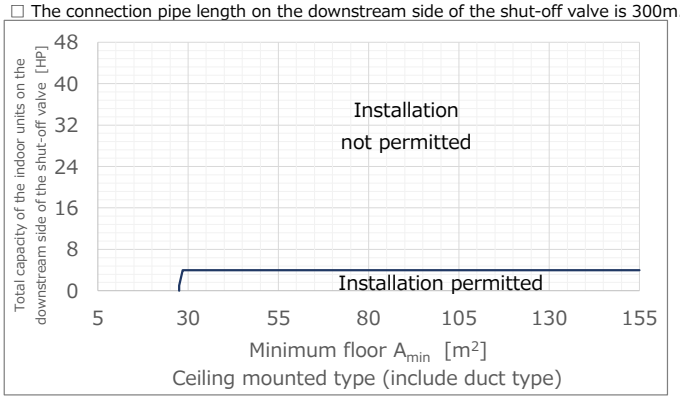


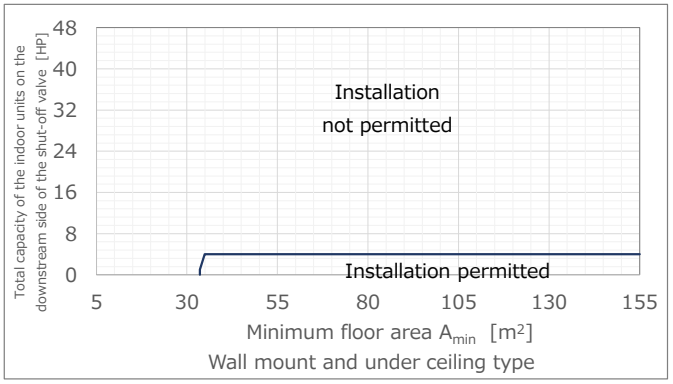
☐ The connection pipe length on the downstream side of the shut-off valve is 200m.



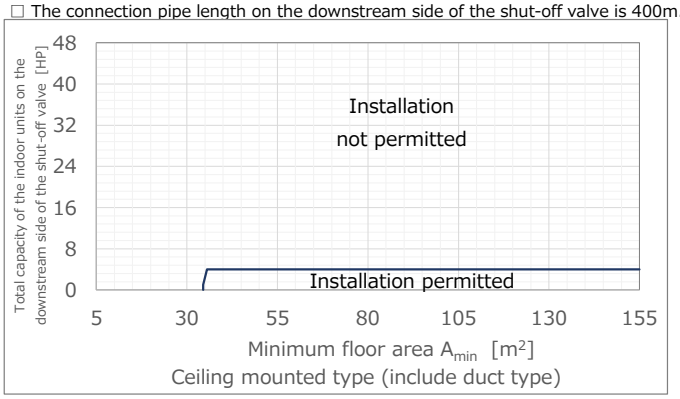


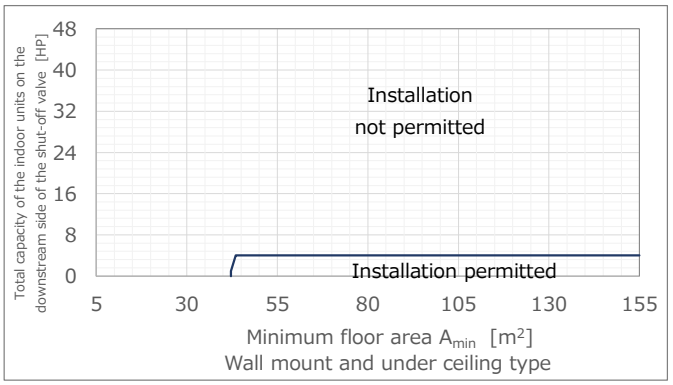
☐ The connection pipe length on the downstream side of the shut-off valve is 300m.



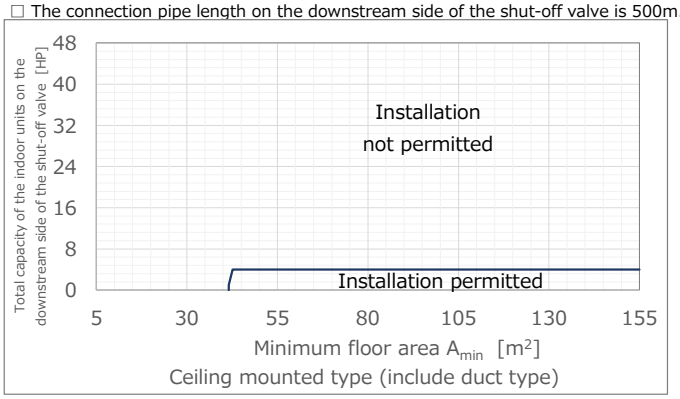


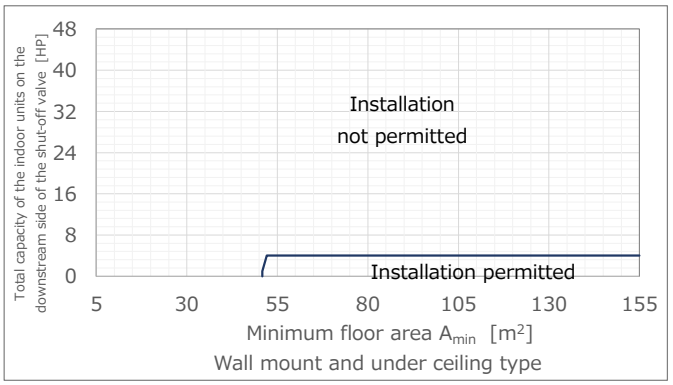
☐ The connection pipe length on the downstream side of the shut-off valve is 400m.





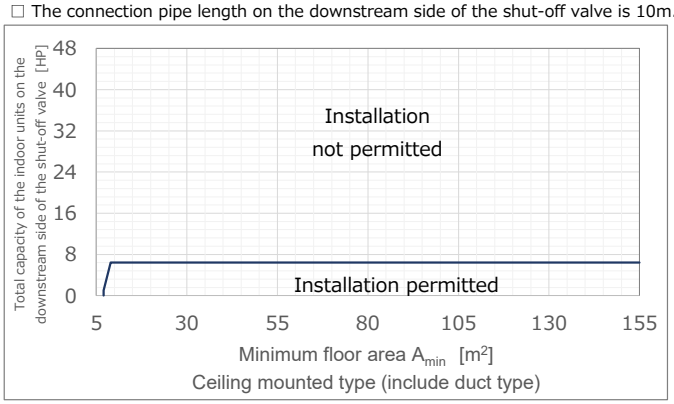
☐ The connection pipe length on the downstream side of the shut-off valve is 500m.

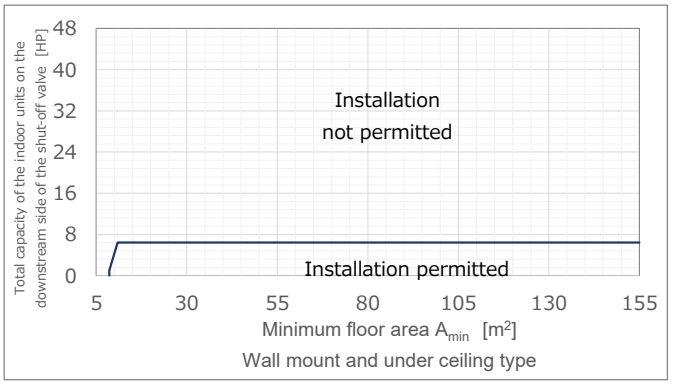




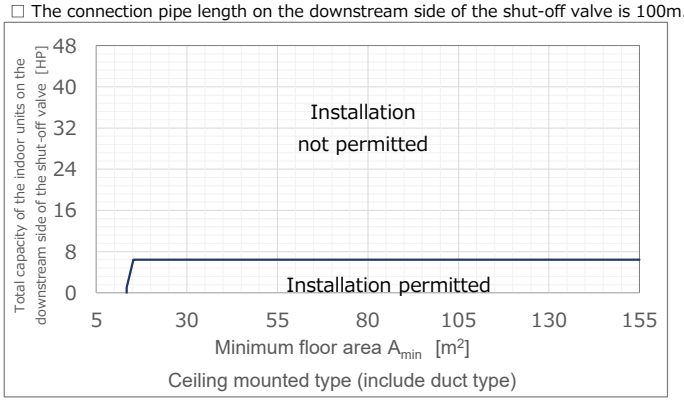
■ Shut-off valve unit (6.4HP type)

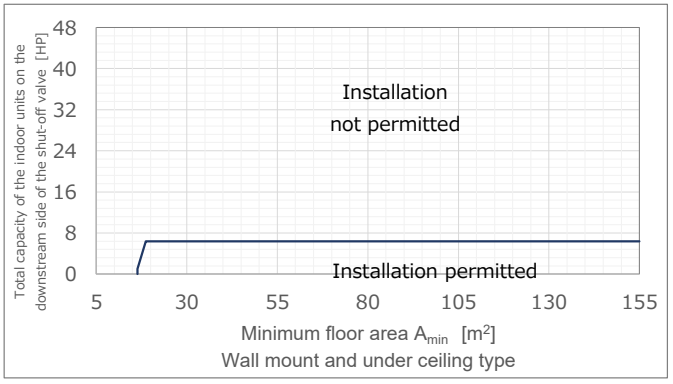
☐ The connection pipe length on the downstream side of the shut-off valve is 10m.



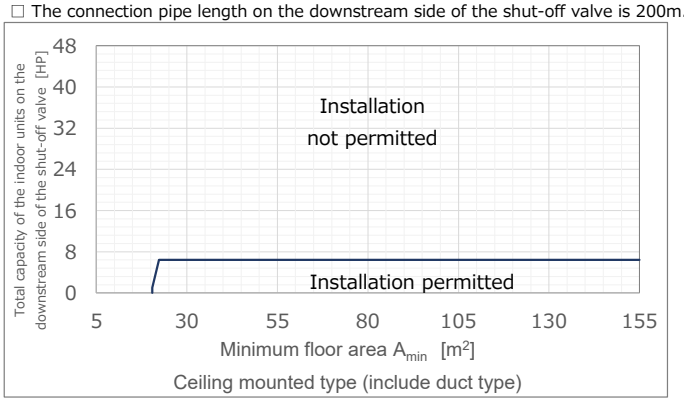


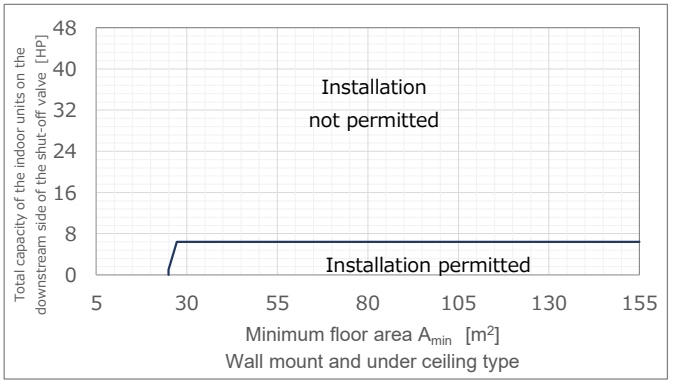
☐ The connection pipe length on the downstream side of the shut-off valve is 100m.



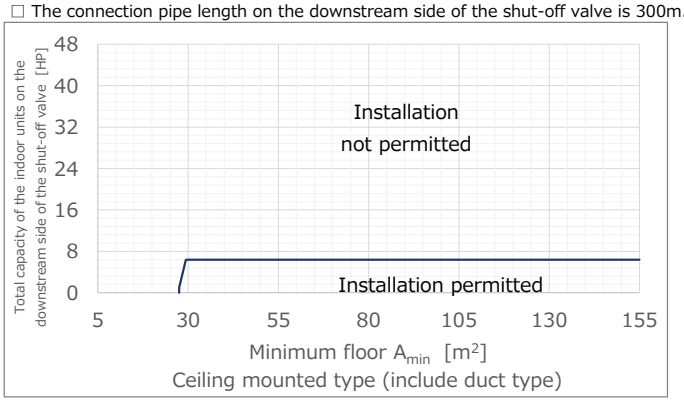


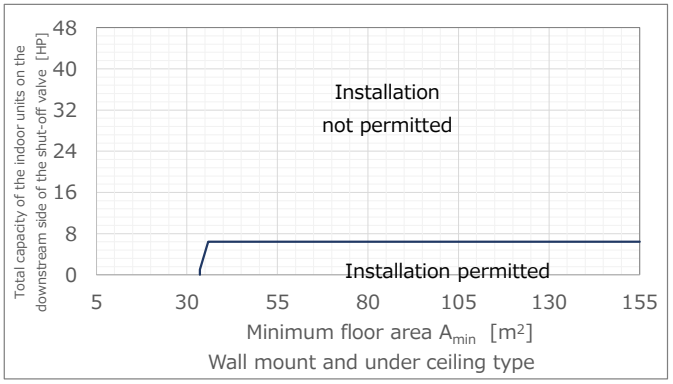
☐ The connection pipe length on the downstream side of the shut-off valve is 200m.



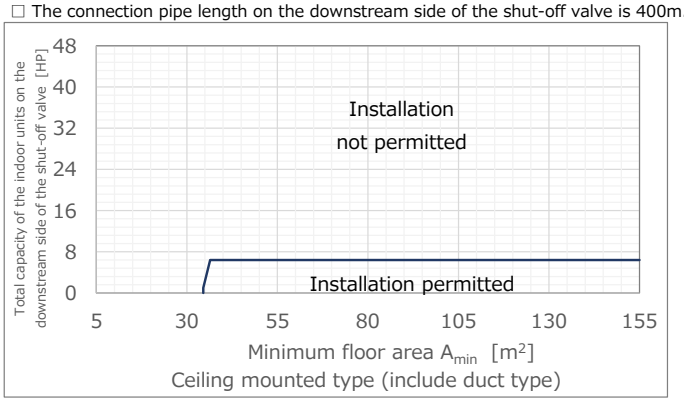


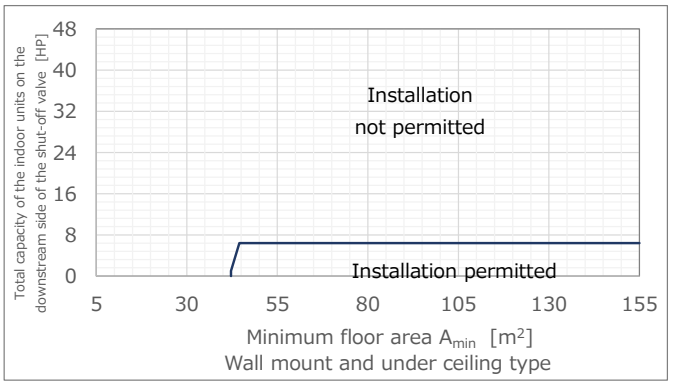
☐ The connection pipe length on the downstream side of the shut-off valve is 300m.



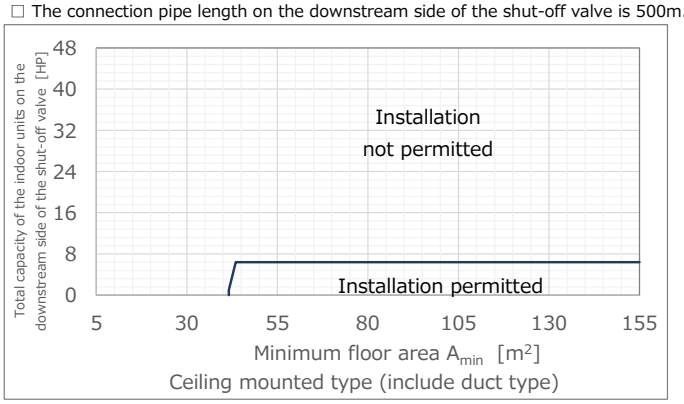


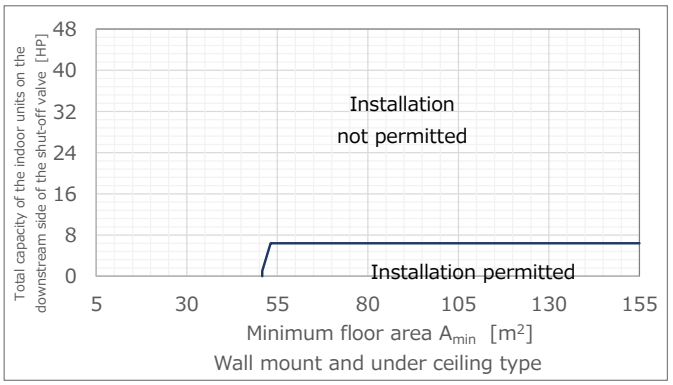
☐ The connection pipe length on the downstream side of the shut-off valve is 400m.





☐ The connection pipe length on the downstream side of the shut-off valve is 500m.

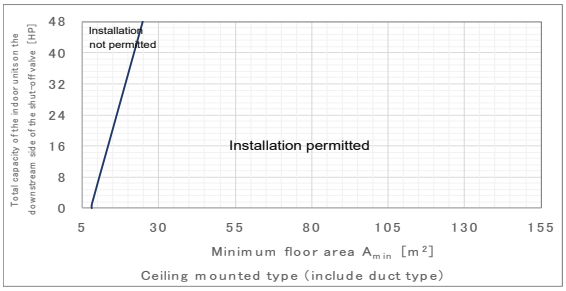


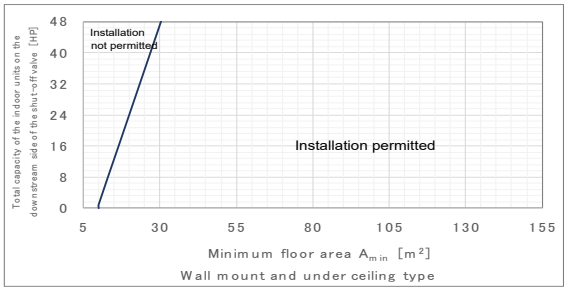


Example)

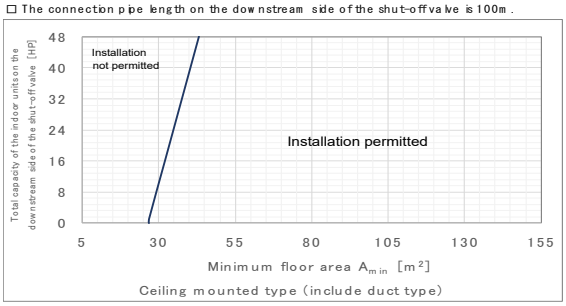
■ Shut-off valve unit (24HP type)

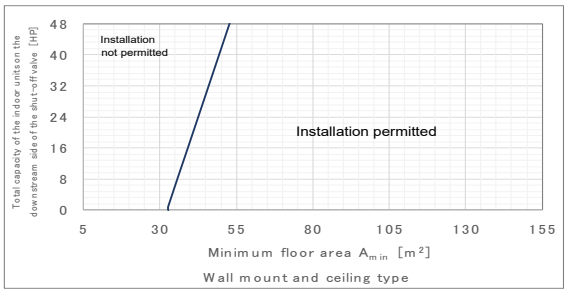
☐ The connection pipe length on the downstream side of the shut-off valve is 10m.



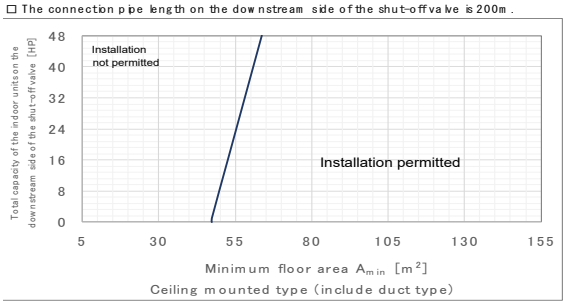


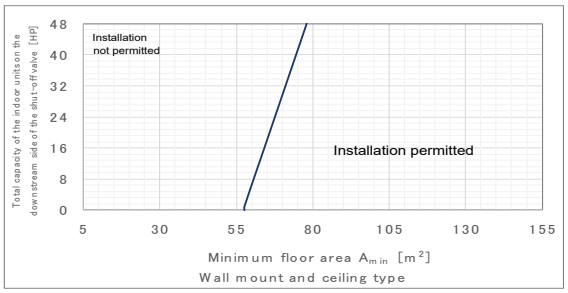
☐ The connection pipe length on the downstream side of the shut-off valve is 100m.



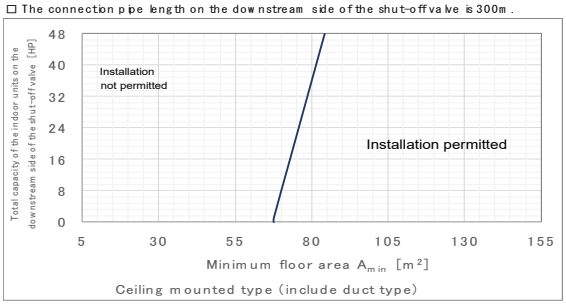


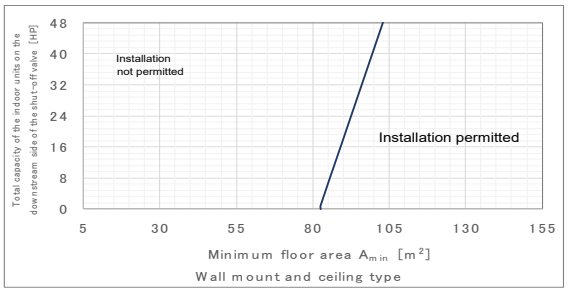
☐ The connection pipe length on the downstream side of the shut-off valve is 200m.



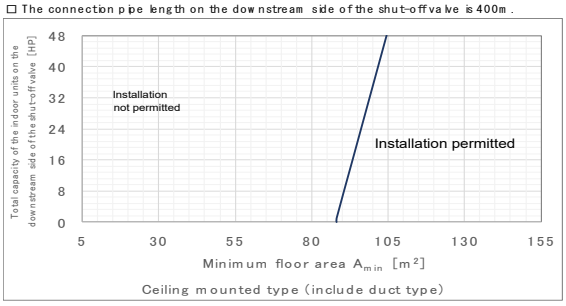


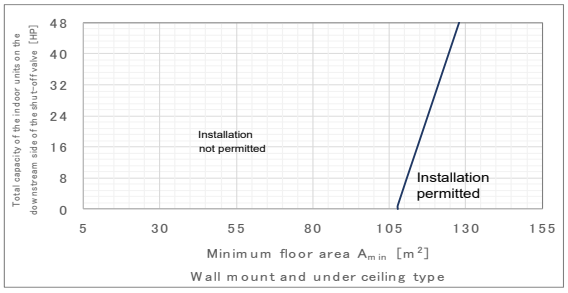
☐ The connection pipe length on the downstream side of the shut-off valve is 300m.





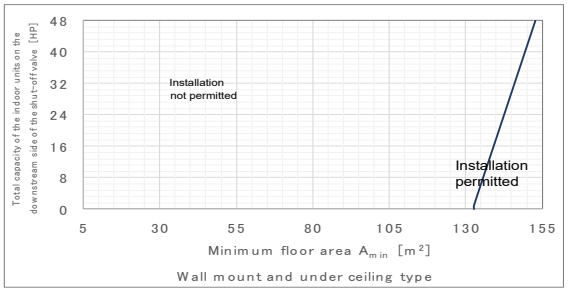
☐ The connection pipe length on the downstream side of the shut-off valve is 400m.





☐ The connection pipe length on the downstream side of the shut-off valve is 500m.





■ Shut-off valve unit (4Hp and 6.4HP type)
□ Ceiling mounted type (include duct type)

Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]						
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]						
	1 HP	2 HP	3 HP	4 HP	5 HP	6 HP	6.4 HP
5	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—
7	9.6	4.6	—	—	—	—	—
8	23.7	18.8	13.8	8.8	3.8	—	—
9	37.9	32.9	28.0	23.0	18.0	13.0	11.0
10	52.1	47.1	42.1	37.1	32.2	27.2	25.2
11	66.3	61.3	56.3	51.3	46.3	41.4	39.4
12	80.5	75.5	70.5	65.5	60.5	55.5	53.5
13	94.6	89.7	84.7	79.7	74.7	69.7	67.7
14	108.8	103.8	98.8	93.9	88.9	83.9	81.9
15	123.0	118.0	113.0	108.0	103.0	98.1	96.1
16	137.2	132.2	127.2	122.2	117.2	112.2	110.2
17	151.3	146.4	141.4	136.4	131.4	126.4	124.4
18	165.5	160.5	155.6	150.6	145.6	140.6	138.6
19	179.7	174.7	169.7	164.7	159.8	154.8	152.8
20	193.9	188.9	183.9	178.9	173.9	169.0	167.0
21	208.1	203.1	198.1	193.1	188.1	183.1	181.1
22	222.2	217.3	212.3	207.3	202.3	197.3	195.3
23	236.4	231.4	226.4	221.5	216.5	211.5	209.5
24	250.6	245.6	240.6	235.6	230.6	225.7	223.7
25	264.8	259.8	254.8	249.8	244.8	239.8	237.8
26	278.9	274.0	269.0	264.0	259.0	254.0	252.0
27	293.1	288.1	283.2	278.2	273.2	268.2	266.2
28	307.3	302.3	297.3	292.3	287.4	282.4	280.4
29	321.5	316.5	311.5	306.5	301.5	296.6	294.6
30	335.7	330.7	325.7	320.7	315.7	310.7	308.7
31	349.8	344.9	339.9	334.9	329.9	324.9	322.9
32	364.0	359.0	354.0	349.1	344.1	339.1	337.1
33	378.2	373.2	368.2	363.2	358.2	353.3	351.3
34	392.4	387.4	382.4	377.4	372.4	367.4	365.4
35	406.5	401.6	396.6	391.6	386.6	381.6	379.6
36	420.7	415.7	410.8	405.8	400.8	395.8	393.8
37	434.9	429.9	424.9	419.9	415.0	410.0	408.0
38	449.1	444.1	439.1	434.1	429.1	424.2	422.2
39	463.3	458.3	453.3	448.3	443.3	438.3	436.3
40	477.4	472.5	467.5	462.5	457.5	452.5	450.5
41	491.6	486.6	481.6	476.7	471.7	466.7	464.7
42	500.0	500.0	495.8	490.8	485.8	480.9	478.9
43	500.0	500.0	500.0	500.0	500.0	495.0	493.0
44	500.0	500.0	500.0	500.0	500.0	500.0	500.0
45	500.0	500.0	500.0	500.0	500.0	500.0	500.0
46	500.0	500.0	500.0	500.0	500.0	500.0	500.0
47	500.0	500.0	500.0	500.0	500.0	500.0	500.0
48	500.0	500.0	500.0	500.0	500.0	500.0	500.0
49	500.0	500.0	500.0	500.0	500.0	500.0	500.0
50	500.0	500.0	500.0	500.0	500.0	500.0	500.0
55	500.0	500.0	500.0	500.0	500.0	500.0	500.0
60	500.0	500.0	500.0	500.0	500.0	500.0	500.0
65	500.0	500.0	500.0	500.0	500.0	500.0	500.0
70	500.0	500.0	500.0	500.0	500.0	500.0	500.0
75	500.0	500.0	500.0	500.0	500.0	500.0	500.0
80	500.0	500.0	500.0	500.0	500.0	500.0	500.0
85	500.0	500.0	500.0	500.0	500.0	500.0	500.0
90	500.0	500.0	500.0	500.0	500.0	500.0	500.0
95	500.0	500.0	500.0	500.0	500.0	500.0	500.0
100	500.0	500.0	500.0	500.0	500.0	500.0	500.0
110	500.0	500.0	500.0	500.0	500.0	500.0	500.0
120	500.0	500.0	500.0	500.0	500.0	500.0	500.0
130	500.0	500.0	500.0	500.0	500.0	500.0	500.0
140	500.0	500.0	500.0	500.0	500.0	500.0	500.0
150	500.0	500.0	500.0	500.0	500.0	500.0	500.0
160	500.0	500.0	500.0	500.0	500.0	500.0	500.0
170	500.0	500.0	500.0	500.0	500.0	500.0	500.0
180	500.0	500.0	500.0	500.0	500.0	500.0	500.0
190	500.0	500.0	500.0	500.0	500.0	500.0	500.0
200	500.0	500.0	500.0	500.0	500.0	500.0	500.0

☐ Wall mount and under ceiling type

Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]						
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]						
	1 HP	2 HP	3 HP	4 HP	5 HP	6 HP	6.4 HP
5	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—
7	—	—	—	—	—	—	—
8	3.1	—	—	—	—	—	—
9	14.7	9.7	4.8	—	—	—	—
10	26.3	21.3	16.4	11.4	6.4	1.4	—
11	37.9	32.9	28.0	23.0	18.0	13.0	11.0
12	49.5	44.5	39.6	34.6	29.6	24.6	22.6
13	61.1	56.1	51.2	46.2	41.2	36.2	34.2
14	72.7	67.7	62.8	57.8	52.8	47.8	45.8
15	84.3	79.3	74.4	69.4	64.4	59.4	57.4
16	95.9	90.9	86.0	81.0	76.0	71.0	69.0
17	107.5	102.5	97.6	92.6	87.6	82.6	80.6
18	119.1	114.1	109.2	104.2	99.2	94.2	92.2
19	130.7	125.7	120.8	115.8	110.8	105.8	103.8
20	142.3	137.3	132.4	127.4	122.4	117.4	115.4
21	153.9	148.9	144.0	139.0	134.0	129.0	127.0
22	165.5	160.5	155.6	150.6	145.6	140.6	138.6
23	177.1	172.1	167.2	162.2	157.2	152.2	150.2
24	188.7	183.7	178.8	173.8	168.8	163.8	161.8
25	200.3	195.3	190.4	185.4	180.4	175.4	173.4
26	211.9	206.9	202.0	197.0	192.0	187.0	185.0
27	223.5	218.5	213.6	208.6	203.6	198.6	196.6
28	235.1	230.1	225.2	220.2	215.2	210.2	208.2
29	246.7	241.7	236.8	231.8	226.8	221.8	219.8
30	258.3	253.3	248.4	243.4	238.4	233.4	231.4
31	269.9	264.9	260.0	255.0	250.0	245.0	243.0
32	281.5	276.5	271.6	266.6	261.6	256.6	254.6
33	293.1	288.1	283.2	278.2	273.2	268.2	266.2
34	304.7	299.7	294.8	289.8	284.8	279.8	277.8
35	316.3	311.3	306.4	301.4	296.4	291.4	289.4
36	327.9	322.9	318.0	313.0	308.0	303.0	301.0
37	339.5	334.5	329.6	324.6	319.6	314.6	312.6
38	351.1	346.1	341.2	336.2	331.2	326.2	324.2
39	362.7	357.7	352.8	347.8	342.8	337.8	335.8
40	374.3	369.3	364.4	359.4	354.4	349.4	347.4
41	385.9	380.9	376.0	371.0	366.0	361.0	359.0
42	397.5	392.5	387.6	382.6	377.6	372.6	370.6
43	409.1	404.1	399.2	394.2	389.2	384.2	382.2
44	420.7	415.7	410.8	405.8	400.8	395.8	393.8
45	432.3	427.3	422.4	417.4	412.4	407.4	405.4
46	443.9	438.9	434.0	429.0	424.0	419.0	417.0
47	455.5	450.5	445.6	440.6	435.6	430.6	428.6
48	467.1	462.1	457.2	452.2	447.2	442.2	440.2
49	478.7	473.7	468.8	463.8	458.8	453.8	451.8
50	490.3	485.3	480.4	475.4	470.4	465.4	463.4
55	500.0	500.0	500.0	500.0	500.0	500.0	500.0
60	500.0	500.0	500.0	500.0	500.0	500.0	500.0
65	500.0	500.0	500.0	500.0	500.0	500.0	500.0
70	500.0	500.0	500.0	500.0	500.0	500.0	500.0
75	500.0	500.0	500.0	500.0	500.0	500.0	500.0
80	500.0	500.0	500.0	500.0	500.0	500.0	500.0
85	500.0	500.0	500.0	500.0	500.0	500.0	500.0
90	500.0	500.0	500.0	500.0	500.0	500.0	500.0
95	500.0	500.0	500.0	500.0	500.0	500.0	500.0
100	500.0	500.0	500.0	500.0	500.0	500.0	500.0
110	500.0	500.0	500.0	500.0	500.0	500.0	500.0
120	500.0	500.0	500.0	500.0	500.0	500.0	500.0
130	500.0	500.0	500.0	500.0	500.0	500.0	500.0
140	500.0	500.0	500.0	500.0	500.0	500.0	500.0
150	500.0	500.0	500.0	500.0	500.0	500.0	500.0
160	500.0	500.0	500.0	500.0	500.0	500.0	500.0
170	500.0	500.0	500.0	500.0	500.0	500.0	500.0
180	500.0	500.0	500.0	500.0	500.0	500.0	500.0
190	500.0	500.0	500.0	500.0	500.0	500.0	500.0
200	500.0	500.0	500.0	500.0	500.0	500.0	500.0

■ Shut-off valve unit (24HP type)
☐ Ceiling mounted type (include duct type)

Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]												
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]												
	1 HP	2 HP	3 HP	4 HP	5 HP	6 HP	7 HP	8 HP	9 HP	10 HP	12 HP	14 HP	16 HP
5	—	—	—	—	—	—	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—	—	—	—	—	—	—
7	3.3	1.5	—	—	—	—	—	—	—	—	—	—	—
8	8.2	6.4	4.7	3.0	1.3	—	—	—	—	—	—	—	—
9	13.1	11.3	9.6	7.9	6.2	4.5	2.7	1.0	—	—	—	—	—
10	17.9	16.2	14.5	12.8	11.1	9.3	7.6	5.9	4.2	2.5	—	—	—
11	22.8	21.1	19.4	17.7	16.0	14.2	12.5	10.8	9.1	7.4	3.9	0.5	—
12	27.7	26.0	24.3	22.6	20.8	19.1	17.4	15.7	14.0	12.2	8.8	5.4	1.9
13	32.6	30.9	29.2	27.5	25.7	24.0	22.3	20.6	18.9	17.1	13.7	10.3	6.8
14	37.5	35.8	34.1	32.3	30.6	28.9	27.2	25.5	23.7	22.0	18.6	15.1	11.7
15	42.4	40.7	39.0	37.2	35.5	33.8	32.1	30.4	28.6	26.9	23.5	20.0	16.6
16	47.3	45.6	43.9	42.1	40.4	38.7	37.0	35.3	33.5	31.8	28.4	24.9	21.5
17	52.2	50.5	48.7	47.0	45.3	43.6	41.9	40.1	38.4	36.7	33.3	29.8	26.4
18	57.1	55.4	53.6	51.9	50.2	48.5	46.8	45.0	43.3	41.6	38.2	34.7	31.3
19	62.0	60.2	58.5	56.8	55.1	53.4	51.6	49.9	48.2	46.5	43.0	39.6	36.2
20	66.9	65.1	63.4	61.7	60.0	58.3	56.5	54.8	53.1	51.4	47.9	44.5	41.1
21	71.7	70.0	68.3	66.6	64.9	63.1	61.4	59.7	58.0	56.3	52.8	49.4	45.9
22	76.6	74.9	73.2	71.5	69.8	68.0	66.3	64.6	62.9	61.2	57.7	54.3	50.8
23	81.5	79.8	78.1	76.4	74.7	72.9	71.2	69.5	67.8	66.1	62.6	59.2	55.7
24	86.4	84.7	83.0	81.3	79.5	77.8	76.1	74.4	72.7	70.9	67.5	64.1	60.6
25	91.3	89.6	87.9	86.2	84.4	82.7	81.0	79.3	77.6	75.8	72.4	69.0	65.5
26	96.2	94.5	92.8	91.0	89.3	87.6	85.9	84.2	82.4	80.7	77.3	73.8	70.4
27	101.1	99.4	97.7	95.9	94.2	92.5	90.8	89.1	87.3	85.6	82.2	78.7	75.3
28	106.0	104.3	102.5	100.8	99.1	97.4	95.7	93.9	92.2	90.5	87.1	83.6	80.2
29	110.9	109.2	107.4	105.7	104.0	102.3	100.6	98.8	97.1	95.4	92.0	88.5	85.1
30	115.8	114.1	112.3	110.6	108.9	107.2	105.5	103.7	102.0	100.3	96.9	93.4	90.0
31	120.7	118.9	117.2	115.5	113.8	112.1	110.3	108.6	106.9	105.2	101.7	98.3	94.9
32	125.6	123.8	122.1	120.4	118.7	117.0	115.2	113.5	111.8	110.1	106.6	103.2	99.8
33	130.4	128.7	127.0	125.3	123.6	121.8	120.1	118.4	116.7	115.0	111.5	108.1	104.6
34	135.3	133.6	131.9	130.2	128.5	126.7	125.0	123.3	121.6	119.9	116.4	113.0	109.5
35	140.2	138.5	136.8	135.1	133.3	131.6	129.9	128.2	126.5	124.7	121.3	117.9	114.4
36	145.1	143.4	141.7	140.0	138.2	136.5	134.8	133.1	131.4	129.6	126.2	122.8	119.3
37	150.0	148.3	146.6	144.9	143.1	141.4	139.7	138.0	136.3	134.5	131.1	127.7	124.2
38	154.9	153.2	151.5	149.7	148.0	146.3	144.6	142.9	141.1	139.4	136.0	132.5	129.1
39	159.8	158.1	156.4	154.6	152.9	151.2	149.5	147.8	146.0	144.3	140.9	137.4	134.0
40	164.7	163.0	161.2	159.5	157.8	156.1	154.4	152.6	150.9	149.2	145.8	142.3	138.9
41	169.6	167.9	166.1	164.4	162.7	161.0	159.3	157.5	155.8	154.1	150.7	147.2	143.8
42	174.5	172.8	171.0	169.3	167.6	165.9	164.1	162.4	160.7	159.0	155.5	152.1	148.7
43	179.4	177.6	175.9	174.2	172.5	170.8	169.0	167.3	165.6	163.9	160.4	157.0	153.6
44	184.3	182.5	180.8	179.1	177.4	175.7	173.9	172.2	170.5	168.8	165.3	161.9	158.5
45	189.1	187.4	185.7	184.0	182.3	180.5	178.8	177.1	175.4	173.7	170.2	166.8	163.3
46	194.0	192.3	190.6	188.9	187.2	185.4	183.7	182.0	180.3	178.6	175.1	171.7	168.2
47	198.9	197.2	195.5	193.8	192.0	190.3	188.6	186.9	185.2	183.4	180.0	176.6	173.1
48	203.8	202.1	200.4	198.7	196.9	195.2	193.5	191.8	190.1	188.3	184.9	181.5	178.0
49	208.7	207.0	205.3	203.6	201.8	200.1	198.4	196.7	194.9	193.2	189.8	186.3	182.9
50	213.6	211.9	210.2	208.4	206.7	205.0	203.3	201.6	199.8	198.1	194.7	191.2	187.8
55	238.1	236.3	234.6	232.9	231.2	229.5	227.7	226.0	224.3	222.6	219.1	215.7	212.3
60	262.5	260.8	259.1	257.4	255.6	253.9	252.2	250.5	248.8	247.0	243.6	240.2	236.7
65	287.0	285.3	283.5	281.8	280.1	278.4	276.7	274.9	273.2	271.5	268.1	264.6	261.2
70	311.4	309.7	308.0	306.3	304.6	302.8	301.1	299.4	297.7	296.0	292.5	289.1	285.6
75	335.9	334.2	332.4	330.7	329.0	327.3	325.6	323.8	322.1	320.4	317.0	313.5	310.1
80	360.3	358.6	356.9	355.2	353.5	351.7	350.0	348.3	346.6	344.9	341.4	338.0	334.5
85	384.8	383.1	381.4	379.6	377.9	376.2	374.5	372.8	371.0	369.3	365.9	362.4	359.0
90	409.3	407.5	405.8	404.1	402.4	400.7	398.9	397.2	395.5	393.8	390.3	386.9	383.5
95	433.7	432.0	430.3	428.6	426.8	425.1	423.4	421.7	420.0	418.2	414.8	411.4	407.9
100	458.2	456.5	454.7	453.0	451.3	449.6	447.9	446.1	444.4	442.7	439.3	435.8	432.4
110	500.0	500.0	500.0	500.0	500.0	498.5	496.8	495.0	493.3	491.6	488.2	484.7	481.3
120	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0
130	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0
140	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0
150	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0
160	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0
170	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0
180	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0
190	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0
200	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0

Minimum floor area A_{min} [m^2]	Connectable pipe length to the downstream side of the shut-off valve [m]									
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]									
	18 HP	20 HP	22 HP	24 HP	28 HP	32 HP	36 HP	40 HP	44 HP	48 HP
5	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-
13	3.4	-	-	-	-	-	-	-	-	-
14	8.3	4.8	1.4	-	-	-	-	-	-	-
15	13.2	9.7	6.3	2.8	-	-	-	-	-	-
16	18.1	14.6	11.2	7.7	0.8	-	-	-	-	-
17	22.9	19.5	16.1	12.6	5.7	-	-	-	-	-
18	27.8	24.4	21.0	17.5	10.6	3.8	-	-	-	-
19	32.7	29.3	25.8	22.4	15.5	8.6	-	-	-	-
20	37.6	34.2	30.7	27.3	20.4	13.5	-	-	-	-
21	42.5	39.1	35.6	32.2	25.3	18.4	-	-	-	-
22	47.4	44.0	40.5	37.1	30.2	23.3	-	-	-	-
23	52.3	48.9	45.4	42.0	35.1	28.2	-	-	-	-
24	57.2	53.7	50.3	46.9	40.0	33.1	-	-	-	-
25	62.1	58.6	55.2	51.8	44.9	38.0	-	-	-	-
26	67.0	63.5	60.1	56.6	49.8	42.9	-	-	-	-
27	71.9	68.4	65.0	61.5	54.7	47.8	-	-	-	-
28	76.7	73.3	69.9	66.4	59.5	52.7	-	-	-	-
29	81.6	78.2	74.8	71.3	64.4	57.6	-	-	-	-
30	86.5	83.1	79.7	76.2	69.3	62.4	-	-	-	-
31	91.4	88.0	84.5	81.1	74.2	67.3	-	-	-	-
32	96.3	92.9	89.4	86.0	79.1	72.2	-	-	-	-
33	101.2	97.8	94.3	90.9	84.0	77.1	-	-	-	-
34	106.1	102.7	99.2	95.8	88.9	82.0	-	-	-	-
35	111.0	107.5	104.1	100.7	93.8	86.9	-	-	-	-
36	115.9	112.4	109.0	105.6	98.7	91.8	-	-	-	-
37	120.8	117.3	113.9	110.5	103.6	96.7	-	-	-	-
38	125.7	122.2	118.8	115.3	108.5	101.6	-	-	-	-
39	130.6	127.1	123.7	120.2	113.4	106.5	-	-	-	-
40	135.4	132.0	128.6	125.1	118.2	111.4	-	-	-	-
41	140.3	136.9	133.5	130.0	123.1	116.3	-	-	-	-
42	145.2	141.8	138.3	134.9	128.0	121.1	-	-	-	-
43	150.1	146.7	143.2	139.8	132.9	126.0	-	-	-	-
44	155.0	151.6	148.1	144.7	137.8	130.9	-	-	-	-
45	159.9	156.5	153.0	149.6	142.7	135.8	-	-	-	-
46	164.8	161.4	157.9	154.5	147.6	140.7	-	-	-	-
47	169.7	166.2	162.8	159.4	152.5	145.6	-	-	-	-
48	174.6	171.1	167.7	164.3	157.4	150.5	-	-	-	-
49	179.5	176.0	172.6	169.1	162.3	155.4	-	-	-	-
50	184.4	180.9	177.5	174.0	167.2	160.3	-	-	-	-
55	208.8	205.4	201.9	198.5	191.6	184.7	-	-	-	-
60	233.3	229.8	226.4	223.0	216.1	209.2	-	-	-	-
65	257.7	254.3	250.9	247.4	240.5	233.7	-	-	-	-
70	282.2	278.7	275.3	271.9	265.0	258.1	-	-	-	-
75	306.6	303.2	299.8	296.3	289.4	282.6	-	-	-	-
80	331.1	327.7	324.2	320.8	313.9	307.0	-	-	-	-
85	355.6	352.1	348.7	345.2	338.4	331.5	-	-	-	-
90	380.0	376.6	373.1	369.7	362.8	355.9	-	-	-	-
95	404.5	401.0	397.6	394.2	387.3	380.4	-	-	-	-
100	428.9	425.5	422.1	418.6	411.7	404.9	-	-	-	-
110	477.8	474.4	471.0	467.5	460.6	453.8	-	-	-	-
120	500.0	500.0	500.0	500.0	500.0	500.0	-	-	-	-
130	500.0	500.0	500.0	500.0	500.0	500.0	-	-	-	-
140	500.0	500.0	500.0	500.0	500.0	500.0	-	-	-	-
150	500.0	500.0	500.0	500.0	500.0	500.0	-	-	-	-
160	500.0	500.0	500.0	500.0	500.0	500.0	-	-	-	-
170	500.0	500.0	500.0	500.0	500.0	500.0	-	-	-	-
180	500.0	500.0	500.0	500.0	500.0	500.0	-	-	-	-
190	500.0	500.0	500.0	500.0	500.0	500.0	-	-	-	-
200	500.0	500.0	500.0	500.0	500.0	500.0	-	-	-	-

☐ Wall mount and under ceiling type

Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]												
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]												
	1 HP	2 HP	3 HP	4 HP	5 HP	6 HP	7 HP	8 HP	9 HP	10 HP	12 HP	14 HP	16 HP
5	—	—	—	—	—	—	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—	—	—	—	—	—	—
7	—	—	—	—	—	—	—	—	—	—	—	—	—
8	1.0	—	—	—	—	—	—	—	—	—	—	—	—
9	5.0	3.3	1.6	—	—	—	—	—	—	—	—	—	—
10	9.0	7.3	5.6	3.9	2.2	0.4	—	—	—	—	—	—	—
11	13.1	11.3	9.6	7.9	6.2	4.5	2.7	1.0	—	—	—	—	—
12	17.1	15.3	13.6	11.9	10.2	8.5	6.7	5.0	3.3	1.6	—	—	—
13	21.1	19.3	17.6	15.9	14.2	12.5	10.7	9.0	7.3	5.6	2.1	—	—
14	25.1	23.3	21.6	19.9	18.2	16.5	14.7	13.0	11.3	9.6	6.1	2.7	—
15	29.1	27.3	25.6	23.9	22.2	20.5	18.7	17.0	15.3	13.6	10.1	6.7	3.3
16	33.1	31.3	29.6	27.9	26.2	24.5	22.7	21.0	19.3	17.6	14.1	10.7	7.3
17	37.1	35.3	33.6	31.9	30.2	28.5	26.7	25.0	23.3	21.6	18.1	14.7	11.3
18	41.1	39.3	37.6	35.9	34.2	32.5	30.7	29.0	27.3	25.6	22.1	18.7	15.3
19	45.1	43.3	41.6	39.9	38.2	36.5	34.7	33.0	31.3	29.6	26.1	22.7	19.3
20	49.1	47.4	45.6	43.9	42.2	40.5	38.8	37.0	35.3	33.6	30.1	26.7	23.3
21	53.1	51.4	49.6	47.9	46.2	44.5	42.8	41.0	39.3	37.6	34.2	30.7	27.3
22	57.1	55.4	53.6	51.9	50.2	48.5	46.8	45.0	43.3	41.6	38.2	34.7	31.3
23	61.1	59.4	57.6	55.9	54.2	52.5	50.8	49.0	47.3	45.6	42.2	38.7	35.3
24	65.1	63.4	61.6	59.9	58.2	56.5	54.8	53.0	51.3	49.6	46.2	42.7	39.3
25	69.1	67.4	65.6	63.9	62.2	60.5	58.8	57.0	55.3	53.6	50.2	46.7	43.3
26	73.1	71.4	69.6	67.9	66.2	64.5	62.8	61.0	59.3	57.6	54.2	50.7	47.3
27	77.1	75.4	73.6	71.9	70.2	68.5	66.8	65.0	63.3	61.6	58.2	54.7	51.3
28	81.1	79.4	77.6	75.9	74.2	72.5	70.8	69.0	67.3	65.6	62.2	58.7	55.3
29	85.1	83.4	81.6	79.9	78.2	76.5	74.8	73.0	71.3	69.6	66.2	62.7	59.3
30	89.1	87.4	85.7	83.9	82.2	80.5	78.8	77.1	75.3	73.6	70.2	66.7	63.3
31	93.1	91.4	89.7	87.9	86.2	84.5	82.8	81.1	79.3	77.6	74.2	70.7	67.3
32	97.1	95.4	93.7	91.9	90.2	88.5	86.8	85.1	83.3	81.6	78.2	74.7	71.3
33	101.1	99.4	97.7	95.9	94.2	92.5	90.8	89.1	87.3	85.6	82.2	78.7	75.3
34	105.1	103.4	101.7	99.9	98.2	96.5	94.8	93.1	91.3	89.6	86.2	82.7	79.3
35	109.1	107.4	105.7	103.9	102.2	100.5	98.8	97.1	95.3	93.6	90.2	86.7	83.3
36	113.1	111.4	109.7	107.9	106.2	104.5	102.8	101.1	99.3	97.6	94.2	90.7	87.3
37	117.1	115.4	113.7	111.9	110.2	108.5	106.8	105.1	103.3	101.6	98.2	94.7	91.3
38	121.1	119.4	117.7	115.9	114.2	112.5	110.8	109.1	107.3	105.6	102.2	98.7	95.3
39	125.1	123.4	121.7	120.0	118.2	116.5	114.8	113.1	111.4	109.6	106.2	102.7	99.3
40	129.1	127.4	125.7	124.0	122.2	120.5	118.8	117.1	115.4	113.6	110.2	106.8	103.3
41	133.1	131.4	129.7	128.0	126.2	124.5	122.8	121.1	119.4	117.6	114.2	110.8	107.3
42	137.1	135.4	133.7	132.0	130.2	128.5	126.8	125.1	123.4	121.6	118.2	114.8	111.3
43	141.1	139.4	137.7	136.0	134.2	132.5	130.8	129.1	127.4	125.6	122.2	118.8	115.3
44	145.1	143.4	141.7	140.0	138.2	136.5	134.8	133.1	131.4	129.6	126.2	122.8	119.3
45	149.1	147.4	145.7	144.0	142.2	140.5	138.8	137.1	135.4	133.6	130.2	126.8	123.3
46	153.1	151.4	149.7	148.0	146.2	144.5	142.8	141.1	139.4	137.6	134.2	130.8	127.3
47	157.1	155.4	153.7	152.0	150.2	148.5	146.8	145.1	143.4	141.6	138.2	134.8	131.3
48	161.1	159.4	157.7	156.0	154.2	152.5	150.8	149.1	147.4	145.6	142.2	138.8	135.3
49	165.1	163.4	161.7	160.0	158.3	156.5	154.8	153.1	151.4	149.7	146.2	142.8	139.3
50	169.1	167.4	165.7	164.0	162.3	160.5	158.8	157.1	155.4	153.7	150.2	146.8	143.3
55	189.1	187.4	185.7	184.0	182.3	180.5	178.8	177.1	175.4	173.7	170.2	166.8	163.3
60	209.2	207.4	205.7	204.0	202.3	200.6	198.8	197.1	195.4	193.7	190.2	186.8	183.4
65	229.2	227.4	225.7	224.0	222.3	220.6	218.8	217.1	215.4	213.7	210.2	206.8	203.4
70	249.2	247.5	245.7	244.0	242.3	240.6	238.9	237.1	235.4	233.7	230.3	226.8	223.4
75	269.2	267.5	265.7	264.0	262.3	260.6	258.9	257.1	255.4	253.7	250.3	246.8	243.4
80	289.2	287.5	285.8	284.0	282.3	280.6	278.9	277.2	275.4	273.7	270.3	266.8	263.4
85	309.2	307.5	305.8	304.0	302.3	300.6	298.9	297.2	295.4	293.7	290.3	286.8	283.4
90	329.2	327.5	325.8	324.1	322.3	320.6	318.9	317.2	315.5	313.7	310.3	306.9	303.4
95	349.2	347.5	345.8	344.1	342.3	340.6	338.9	337.2	335.5	333.7	330.3	326.9	323.4
100	369.2	367.5	365.8	364.1	362.4	360.6	358.9	357.2	355.5	353.8	350.3	346.9	343.4
110	409.3	407.5	405.8	404.1	402.4	400.7	398.9	397.2	395.5	393.8	390.3	386.9	383.5
120	449.3	447.6	445.8	444.1	442.4	440.7	439.0	437.2	435.5	433.8	430.4	426.9	423.5
130	489.3	487.6	485.9	484.1	482.4	480.7	479.0	477.3	475.5	473.8	470.4	466.9	463.5
140	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0
150	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0
160	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0
170	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0
180	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0
190	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0
200	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0

Minimum floor area A_{min} [m^2]	Connectable pipe length to the downstream side of the shut-off valve [m]									
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]									
	18 HP	20 HP	22 HP	24 HP	28 HP	32 HP	36 HP	40 HP	44 HP	48 HP
5	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-
16	3.8	0.4	-	-	-	-	-	-	-	-
17	7.8	4.4	0.9	-	-	-	-	-	-	-
18	11.8	8.4	4.9	1.5	-	-	-	-	-	-
19	15.8	12.4	8.9	5.5	-	-	-	-	-	-
20	19.8	16.4	12.9	9.5	2.6	-	-	-	-	-
21	23.8	20.4	17.0	13.5	6.6	-	-	-	-	-
22	27.8	24.4	21.0	17.5	10.6	3.8	-	-	-	-
23	31.8	28.4	25.0	21.5	14.6	7.8	-	-	-	-
24	35.8	32.4	29.0	25.5	18.6	11.8	-	-	-	-
25	39.8	36.4	33.0	29.5	22.6	15.8	-	-	-	-
26	43.8	40.4	37.0	33.5	26.6	19.8	-	-	-	-
27	47.8	44.4	41.0	37.5	30.6	23.8	-	-	-	-
28	51.8	48.4	45.0	41.5	34.6	27.8	-	-	-	-
29	55.8	52.4	49.0	45.5	38.6	31.8	-	-	-	-
30	59.9	56.4	53.0	49.5	42.6	35.8	-	-	-	-
31	63.9	60.4	57.0	53.5	46.7	39.8	-	-	-	-
32	67.9	64.4	61.0	57.5	50.7	43.8	-	-	-	-
33	71.9	68.4	65.0	61.5	54.7	47.8	-	-	-	-
34	75.9	72.4	69.0	65.5	58.7	51.8	-	-	-	-
35	79.9	76.4	73.0	69.5	62.7	55.8	-	-	-	-
36	83.9	80.4	77.0	73.5	66.7	59.8	-	-	-	-
37	87.9	84.4	81.0	77.5	70.7	63.8	-	-	-	-
38	91.9	88.4	85.0	81.5	74.7	67.8	-	-	-	-
39	95.9	92.4	89.0	85.5	78.7	71.8	-	-	-	-
40	99.9	96.4	93.0	89.6	82.7	75.8	-	-	-	-
41	103.9	100.4	97.0	93.6	86.7	79.8	-	-	-	-
42	107.9	104.4	101.0	97.6	90.7	83.8	-	-	-	-
43	111.9	108.4	105.0	101.6	94.7	87.8	-	-	-	-
44	115.9	112.4	109.0	105.6	98.7	91.8	-	-	-	-
45	119.9	116.4	113.0	109.6	102.7	95.8	-	-	-	-
46	123.9	120.4	117.0	113.6	106.7	99.8	-	-	-	-
47	127.9	124.4	121.0	117.6	110.7	103.8	-	-	-	-
48	131.9	128.4	125.0	121.6	114.7	107.8	-	-	-	-
49	135.9	132.5	129.0	125.6	118.7	111.8	-	-	-	-
50	139.9	136.5	133.0	129.6	122.7	115.8	-	-	-	-
55	159.9	156.5	153.0	149.6	142.7	135.8	-	-	-	-
60	179.9	176.5	173.0	169.6	162.7	155.8	-	-	-	-
65	199.9	196.5	193.0	189.6	182.7	175.8	-	-	-	-
70	219.9	216.5	213.1	209.6	202.7	195.9	-	-	-	-
75	239.9	236.5	233.1	229.6	222.7	215.9	-	-	-	-
80	260.0	256.5	253.1	249.6	242.8	235.9	-	-	-	-
85	280.0	276.5	273.1	269.6	262.8	255.9	-	-	-	-
90	300.0	296.5	293.1	289.7	282.8	275.9	-	-	-	-
95	320.0	316.5	313.1	309.7	302.8	295.9	-	-	-	-
100	340.0	336.6	333.1	329.7	322.8	315.9	-	-	-	-
110	380.0	376.6	373.1	369.7	362.8	355.9	-	-	-	-
120	420.0	416.6	413.2	409.7	402.8	396.0	-	-	-	-
130	460.1	456.6	453.2	449.7	442.9	436.0	-	-	-	-
140	500.0	496.6	493.2	489.8	482.9	476.0	-	-	-	-
150	500.0	500.0	500.0	500.0	500.0	500.0	-	-	-	-
160	500.0	500.0	500.0	500.0	500.0	500.0	-	-	-	-
170	500.0	500.0	500.0	500.0	500.0	500.0	-	-	-	-
180	500.0	500.0	500.0	500.0	500.0	500.0	-	-	-	-
190	500.0	500.0	500.0	500.0	500.0	500.0	-	-	-	-
200	500.0	500.0	500.0	500.0	500.0	500.0	-	-	-	-

○ Individual shut-off operation setting (the CODE No. [107])
For individual shut-off, the following 2 types of shutoff valves can be connected.

No.	Type	System
1	FS unit (Single port)	Heat recovery
2	Short-off valve kit	Heat recovery, cooling only setting of heat recover, Heat pump

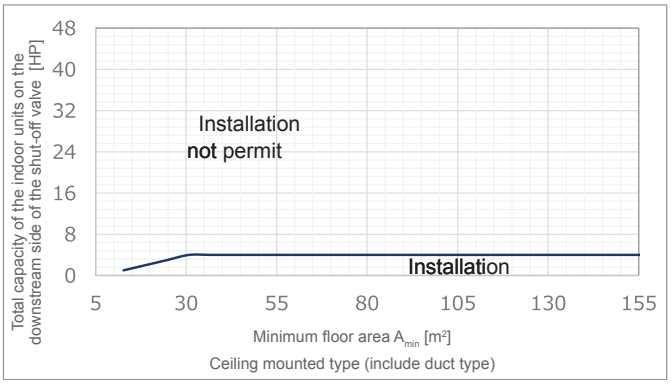
FS: Flow Selector unit
SV: Shut-off Valve

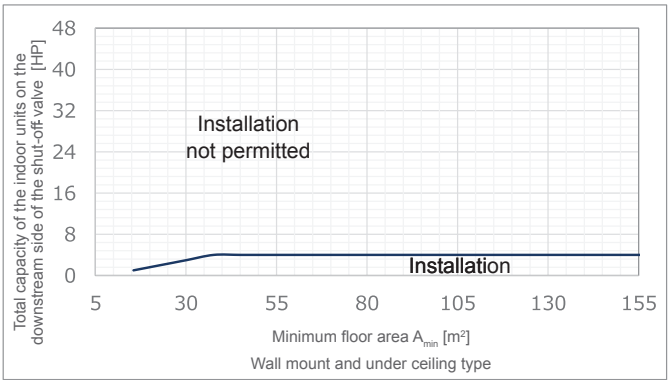
The installation availability line differs depending on the FS unit type and Shut-off valve unit type (single, horsepower) and the length of the connecting pipe.

Example

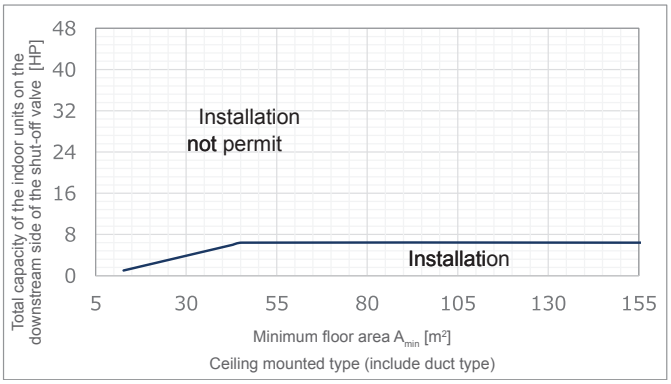
○ Setting up the CODE No. [107] to 2 (Individual shut-off operation)

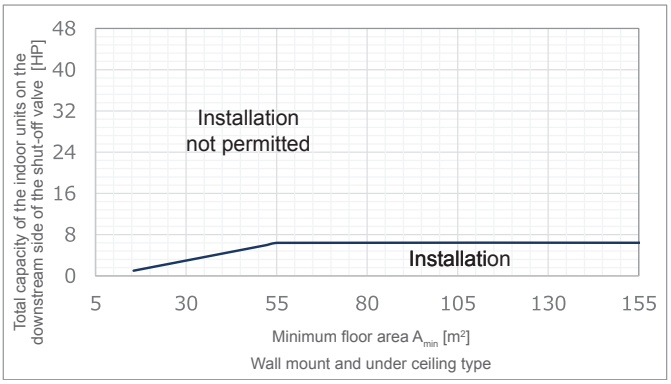
■ Flow Selector unit Single-port type (4 HP type) In case that connection pipe length on the downstream side is 10 m.



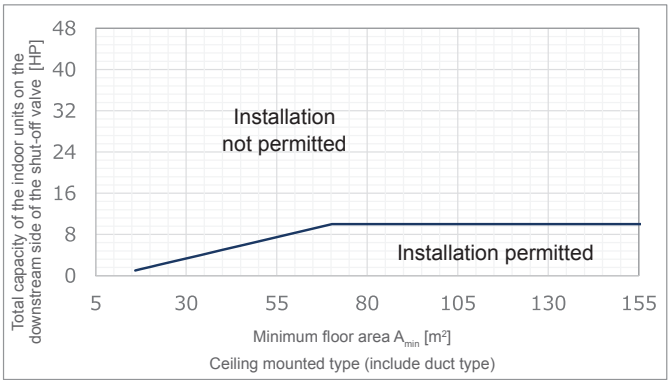


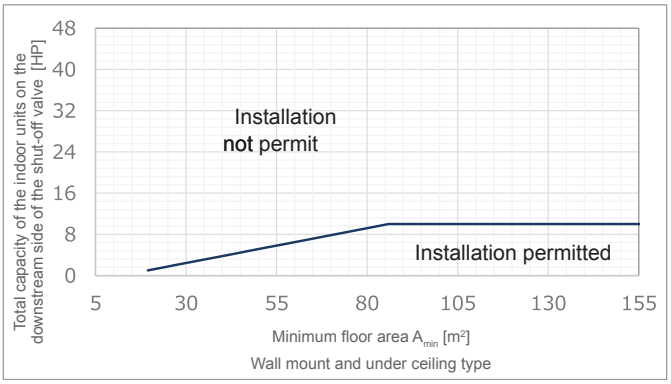
■ Flow Selector unit Single-port type (6.4 HP type) In case that connection pipe length on the downstream side is 10 m.





■ Flow Selector unit Single-port type (10 HP type) In case that connection pipe length on the downstream side is 10 m.





■ Single port type FS unit (4HP and 6.4HP type)

□ Ceiling mounted type (include duct type)

Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]						
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]						
	1 HP	2 HP	3 HP	4 HP	5 HP	6 HP	6.4 HP
5	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—
7	—	—	—	—	—	—	—
8	—	—	—	—	—	—	—
9	—	—	—	—	—	—	—
10	2.6	—	—	—	—	—	—
11	5.3	—	—	—	—	—	—
12	8.0	—	—	—	—	—	—
13	10.8	—	—	—	—	—	—
14	13.5	—	—	—	—	—	—
15	16.2	—	—	—	—	—	—
16	18.9	2.5	—	—	—	—	—
17	21.7	5.2	—	—	—	—	—
18	24.4	7.9	—	—	—	—	—
19	27.1	10.7	—	—	—	—	—
20	29.8	13.4	—	—	—	—	—
21	32.6	16.1	—	—	—	—	—
22	35.3	18.8	2.4	—	—	—	—
23	38.0	21.6	5.1	—	—	—	—
24	40.7	24.3	7.8	—	—	—	—
25	43.5	27.0	10.6	—	—	—	—
26	46.2	29.7	13.3	—	—	—	—
27	48.9	32.4	16.0	—	—	—	—
28	50.0	35.2	18.7	2.3	—	—	—
29	50.0	37.9	21.4	5.0	—	—	—
30	50.0	40.6	24.2	7.7	—	—	—
31	50.0	43.3	26.9	10.4	—	—	—
32	50.0	46.1	29.6	13.2	—	—	—
33	50.0	48.8	32.3	15.9	—	—	—
34	50.0	50.0	35.1	18.6	2.2	—	—
35	50.0	50.0	37.8	21.3	4.9	—	—
36	50.0	50.0	40.5	24.1	7.6	—	—
37	50.0	50.0	43.2	26.8	10.3	—	—
38	50.0	50.0	46.0	29.5	13.1	—	—
39	50.0	50.0	48.7	32.2	15.8	—	—
40	50.0	50.0	50.0	34.9	18.5	2.0	—
41	50.0	50.0	50.0	37.7	21.2	4.8	—
42	50.0	50.0	50.0	40.4	23.9	7.5	0.9
43	50.0	50.0	50.0	43.1	26.7	10.2	3.6
44	50.0	50.0	50.0	45.8	29.4	12.9	6.4
45	50.0	50.0	50.0	48.6	32.1	15.7	9.1
46	50.0	50.0	50.0	50.0	34.8	18.4	11.8
47	50.0	50.0	50.0	50.0	37.6	21.1	14.5
48	50.0	50.0	50.0	50.0	40.3	23.8	17.3
49	50.0	50.0	50.0	50.0	43.0	26.6	20.0
50	50.0	50.0	50.0	50.0	45.7	29.3	22.7
55	50.0	50.0	50.0	50.0	50.0	42.9	36.3
60	50.0	50.0	50.0	50.0	50.0	50.0	49.9
65	50.0	50.0	50.0	50.0	50.0	50.0	50.0
70	50.0	50.0	50.0	50.0	50.0	50.0	50.0
75	50.0	50.0	50.0	50.0	50.0	50.0	50.0
80	50.0	50.0	50.0	50.0	50.0	50.0	50.0
85	50.0	50.0	50.0	50.0	50.0	50.0	50.0
90	50.0	50.0	50.0	50.0	50.0	50.0	50.0
95	50.0	50.0	50.0	50.0	50.0	50.0	50.0
100	50.0	50.0	50.0	50.0	50.0	50.0	50.0
110	50.0	50.0	50.0	50.0	50.0	50.0	50.0
120	50.0	50.0	50.0	50.0	50.0	50.0	50.0
130	50.0	50.0	50.0	50.0	50.0	50.0	50.0
140	50.0	50.0	50.0	50.0	50.0	50.0	50.0
150	50.0	50.0	50.0	50.0	50.0	50.0	50.0
160	50.0	50.0	50.0	50.0	50.0	50.0	50.0
170	50.0	50.0	50.0	50.0	50.0	50.0	50.0
180	50.0	50.0	50.0	50.0	50.0	50.0	50.0
190	50.0	50.0	50.0	50.0	50.0	50.0	50.0
200	50.0	50.0	50.0	50.0	50.0	50.0	50.0
210	50.0	50.0	50.0	50.0	50.0	50.0	50.0
220	50.0	50.0	50.0	50.0	50.0	50.0	50.0
230	50.0	50.0	50.0	50.0	50.0	50.0	50.0
240	50.0	50.0	50.0	50.0	50.0	50.0	50.0
250	50.0	50.0	50.0	50.0	50.0	50.0	50.0

☐ Wall mount and under ceiling type

Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]						
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]						
	1 HP	2 HP	3 HP	4 HP	5 HP	6 HP	6.4 HP
5	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—
7	—	—	—	—	—	—	—
8	—	—	—	—	—	—	—
9	—	—	—	—	—	—	—
10	—	—	—	—	—	—	—
11	—	—	—	—	—	—	—
12	2.1	—	—	—	—	—	—
13	4.3	—	—	—	—	—	—
14	6.6	—	—	—	—	—	—
15	8.8	—	—	—	—	—	—
16	11.0	—	—	—	—	—	—
17	13.2	—	—	—	—	—	—
18	15.5	—	—	—	—	—	—
19	17.7	1.3	—	—	—	—	—
20	19.9	3.5	—	—	—	—	—
21	22.2	5.7	—	—	—	—	—
22	24.4	7.9	—	—	—	—	—
23	26.6	10.2	—	—	—	—	—
24	28.8	12.4	—	—	—	—	—
25	31.1	14.6	—	—	—	—	—
26	33.3	16.9	0.4	—	—	—	—
27	35.5	19.1	2.6	—	—	—	—
28	37.8	21.3	4.9	—	—	—	—
29	40.0	23.5	7.1	—	—	—	—
30	42.2	25.8	9.3	—	—	—	—
31	44.4	28.0	11.5	—	—	—	—
32	46.7	30.2	13.8	—	—	—	—
33	48.9	32.4	16.0	—	—	—	—
34	50.0	34.7	18.2	1.8	—	—	—
35	50.0	36.9	20.5	4.0	—	—	—
36	50.0	39.1	22.7	6.2	—	—	—
37	50.0	41.4	24.9	8.5	—	—	—
38	50.0	43.6	27.1	10.7	—	—	—
39	50.0	45.8	29.4	12.9	—	—	—
40	50.0	48.0	31.6	15.1	—	—	—
41	50.0	50.0	33.8	17.4	0.9	—	—
42	50.0	50.0	36.0	19.6	3.1	—	—
43	50.0	50.0	38.3	21.8	5.4	—	—
44	50.0	50.0	40.5	24.1	7.6	—	—
45	50.0	50.0	42.7	26.3	9.8	—	—
46	50.0	50.0	45.0	28.5	12.1	—	—
47	50.0	50.0	47.2	30.7	14.3	—	—
48	50.0	50.0	49.4	33.0	16.5	0.1	—
49	50.0	50.0	50.0	35.2	18.7	2.3	—
50	50.0	50.0	50.0	37.4	21.0	4.5	—
55	50.0	50.0	50.0	48.6	32.1	15.7	9.1
60	50.0	50.0	50.0	50.0	43.3	26.8	20.2
65	50.0	50.0	50.0	50.0	50.0	37.9	31.4
70	50.0	50.0	50.0	50.0	50.0	49.1	42.5
75	50.0	50.0	50.0	50.0	50.0	50.0	50.0
80	50.0	50.0	50.0	50.0	50.0	50.0	50.0
85	50.0	50.0	50.0	50.0	50.0	50.0	50.0
90	50.0	50.0	50.0	50.0	50.0	50.0	50.0
95	50.0	50.0	50.0	50.0	50.0	50.0	50.0
100	50.0	50.0	50.0	50.0	50.0	50.0	50.0
110	50.0	50.0	50.0	50.0	50.0	50.0	50.0
120	50.0	50.0	50.0	50.0	50.0	50.0	50.0
130	50.0	50.0	50.0	50.0	50.0	50.0	50.0
140	50.0	50.0	50.0	50.0	50.0	50.0	50.0
150	50.0	50.0	50.0	50.0	50.0	50.0	50.0
160	50.0	50.0	50.0	50.0	50.0	50.0	50.0
170	50.0	50.0	50.0	50.0	50.0	50.0	50.0
180	50.0	50.0	50.0	50.0	50.0	50.0	50.0
190	50.0	50.0	50.0	50.0	50.0	50.0	50.0
200	50.0	50.0	50.0	50.0	50.0	50.0	50.0
210	50.0	50.0	50.0	50.0	50.0	50.0	50.0
220	50.0	50.0	50.0	50.0	50.0	50.0	50.0
230	50.0	50.0	50.0	50.0	50.0	50.0	50.0
240	50.0	50.0	50.0	50.0	50.0	50.0	50.0
250	50.0	50.0	50.0	50.0	50.0	50.0	50.0

■ Single port type FS unit (10HP type)

□ Ceiling mounted type (include duct type)

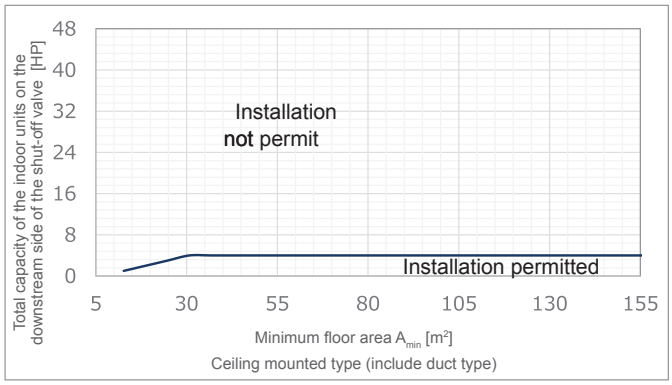
FS: Flow Selector unit

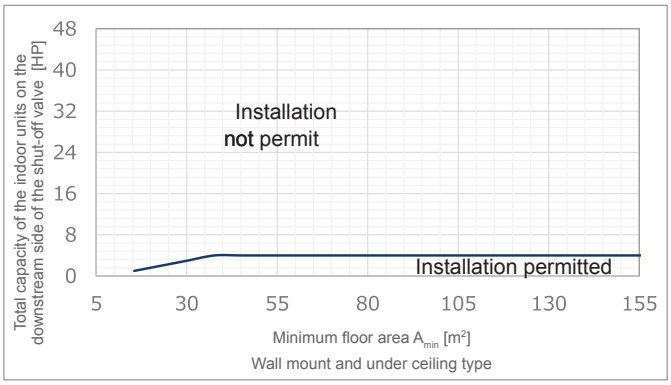
Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]									
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]									
	1 HP	2 HP	3 HP	4 HP	5 HP	6 HP	7 HP	8 HP	9 HP	10 HP
5	—	—	—	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—	—	—	—
7	—	—	—	—	—	—	—	—	—	—
8	—	—	—	—	—	—	—	—	—	—
9	—	—	—	—	—	—	—	—	—	—
10	1.4	—	—	—	—	—	—	—	—	—
11	2.8	—	—	—	—	—	—	—	—	—
12	4.3	—	—	—	—	—	—	—	—	—
13	5.7	—	—	—	—	—	—	—	—	—
14	7.2	—	—	—	—	—	—	—	—	—
15	8.6	—	—	—	—	—	—	—	—	—
16	10.1	1.3	—	—	—	—	—	—	—	—
17	11.5	2.8	—	—	—	—	—	—	—	—
18	13.0	4.2	—	—	—	—	—	—	—	—
19	14.4	5.7	—	—	—	—	—	—	—	—
20	15.9	7.1	—	—	—	—	—	—	—	—
21	17.3	8.6	—	—	—	—	—	—	—	—
22	18.8	10.0	1.2	—	—	—	—	—	—	—
23	20.2	11.5	2.7	—	—	—	—	—	—	—
24	21.7	12.9	4.1	—	—	—	—	—	—	—
25	23.1	14.4	5.6	—	—	—	—	—	—	—
26	24.6	15.8	7.0	—	—	—	—	—	—	—
27	26.0	17.3	8.5	—	—	—	—	—	—	—
28	27.5	18.7	9.9	1.2	—	—	—	—	—	—
29	28.9	20.2	11.4	2.6	—	—	—	—	—	—
30	30.4	21.6	12.8	4.1	—	—	—	—	—	—
31	31.8	23.1	14.3	5.5	—	—	—	—	—	—
32	33.3	24.5	15.7	7.0	—	—	—	—	—	—
33	34.7	26.0	17.2	8.4	—	—	—	—	—	—
34	36.2	27.4	18.6	9.9	1.1	—	—	—	—	—
35	37.6	28.9	20.1	11.3	2.6	—	—	—	—	—
36	39.1	30.3	21.5	12.8	4.0	—	—	—	—	—
37	40.5	31.8	23.0	14.2	5.5	—	—	—	—	—
38	42.0	33.2	24.4	15.7	6.9	—	—	—	—	—
39	43.4	34.7	25.9	17.1	8.4	—	—	—	—	—
40	44.9	36.1	27.3	18.6	9.8	1.1	—	—	—	—
41	46.3	37.6	28.8	20.0	11.3	2.5	—	—	—	—
42	47.8	39.0	30.2	21.5	12.7	4.0	—	—	—	—
43	49.2	40.5	31.7	22.9	14.2	5.4	—	—	—	—
44	50.0	41.9	33.1	24.4	15.6	6.9	—	—	—	—
45	50.0	43.4	34.6	25.8	17.1	8.3	—	—	—	—
46	50.0	44.8	36.0	27.3	18.5	9.8	1.0	—	—	—
47	50.0	46.3	37.5	28.7	20.0	11.2	2.5	—	—	—
48	50.0	47.7	38.9	30.2	21.4	12.7	3.9	—	—	—
49	50.0	49.2	40.4	31.6	22.9	14.1	5.4	—	—	—
50	50.0	50.0	41.8	33.1	24.3	15.6	6.8	—	—	—
55	50.0	50.0	49.1	40.3	31.6	22.8	14.1	5.3	—	—
60	50.0	50.0	50.0	47.6	38.8	30.1	21.3	12.5	3.8	—
65	50.0	50.0	50.0	50.0	46.1	37.3	28.6	19.8	11.0	2.3
70	50.0	50.0	50.0	50.0	50.0	44.6	35.8	27.0	18.3	9.5
75	50.0	50.0	50.0	50.0	50.0	50.0	43.1	34.3	25.5	16.8
80	50.0	50.0	50.0	50.0	50.0	50.0	50.0	41.6	32.8	24.0
85	50.0	50.0	50.0	50.0	50.0	50.0	50.0	48.8	40.0	31.3
90	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	47.3	38.5
95	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	45.8
100	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
110	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
120	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
130	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
140	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
150	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
160	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
170	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
180	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
190	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
200	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
210	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
220	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
230	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
240	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
250	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0

☐ Wall mount and under ceiling type

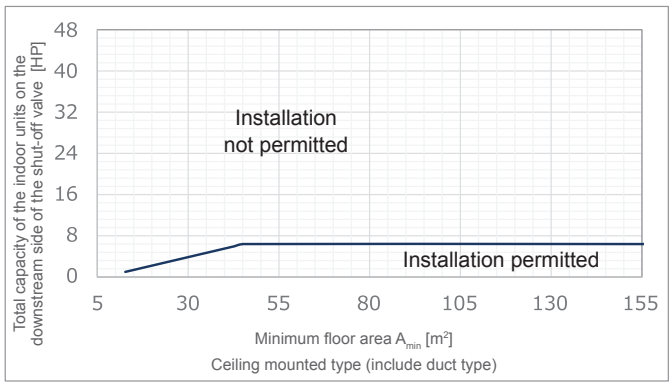
Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]									
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]									
	1 HP	2 HP	3 HP	4 HP	5 HP	6 HP	7 HP	8 HP	9 HP	10 HP
5	—	—	—	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—	—	—	—
7	—	—	—	—	—	—	—	—	—	—
8	—	—	—	—	—	—	—	—	—	—
9	—	—	—	—	—	—	—	—	—	—
10	—	—	—	—	—	—	—	—	—	—
11	—	—	—	—	—	—	—	—	—	—
12	1.1	—	—	—	—	—	—	—	—	—
13	2.3	—	—	—	—	—	—	—	—	—
14	3.5	—	—	—	—	—	—	—	—	—
15	4.7	—	—	—	—	—	—	—	—	—
16	5.8	—	—	—	—	—	—	—	—	—
17	7.0	—	—	—	—	—	—	—	—	—
18	8.2	—	—	—	—	—	—	—	—	—
19	9.4	0.6	—	—	—	—	—	—	—	—
20	10.6	1.8	—	—	—	—	—	—	—	—
21	11.8	3.0	—	—	—	—	—	—	—	—
22	13.0	4.2	—	—	—	—	—	—	—	—
23	14.2	5.4	—	—	—	—	—	—	—	—
24	15.3	6.6	—	—	—	—	—	—	—	—
25	16.5	7.8	—	—	—	—	—	—	—	—
26	17.7	8.9	0.2	—	—	—	—	—	—	—
27	18.9	10.1	1.4	—	—	—	—	—	—	—
28	20.1	11.3	2.6	—	—	—	—	—	—	—
29	21.3	12.5	3.7	—	—	—	—	—	—	—
30	22.5	13.7	4.9	—	—	—	—	—	—	—
31	23.6	14.9	6.1	—	—	—	—	—	—	—
32	24.8	16.1	7.3	—	—	—	—	—	—	—
33	26.0	17.3	8.5	—	—	—	—	—	—	—
34	27.2	18.4	9.7	0.9	—	—	—	—	—	—
35	28.4	19.6	10.9	2.1	—	—	—	—	—	—
36	29.6	20.8	12.1	3.3	—	—	—	—	—	—
37	30.8	22.0	13.2	4.5	—	—	—	—	—	—
38	31.9	23.2	14.4	5.7	—	—	—	—	—	—
39	33.1	24.4	15.6	6.9	—	—	—	—	—	—
40	34.3	25.6	16.8	8.0	—	—	—	—	—	—
41	35.5	26.7	18.0	9.2	0.5	—	—	—	—	—
42	36.7	27.9	19.2	10.4	1.7	—	—	—	—	—
43	37.9	29.1	20.4	11.6	2.8	—	—	—	—	—
44	39.1	30.3	21.5	12.8	4.0	—	—	—	—	—
45	40.3	31.5	22.7	14.0	5.2	—	—	—	—	—
46	41.4	32.7	23.9	15.2	6.4	—	—	—	—	—
47	42.6	33.9	25.1	16.3	7.6	—	—	—	—	—
48	43.8	35.1	26.3	17.5	8.8	0.0	—	—	—	—
49	45.0	36.2	27.5	18.7	10.0	1.2	—	—	—	—
50	46.2	37.4	28.7	19.9	11.1	2.4	—	—	—	—
55	50.0	43.4	34.6	25.8	17.1	8.3	—	—	—	—
60	50.0	49.3	40.5	31.8	23.0	14.2	5.5	—	—	—
65	50.0	50.0	46.5	37.7	28.9	20.2	11.4	2.7	—	—
70	50.0	50.0	50.0	43.6	34.9	26.1	17.4	8.6	—	—
75	50.0	50.0	50.0	49.6	40.8	32.0	23.3	14.5	5.8	—
80	50.0	50.0	50.0	50.0	46.7	38.0	29.2	20.5	11.7	2.9
85	50.0	50.0	50.0	50.0	50.0	43.9	35.2	26.4	17.6	8.9
90	50.0	50.0	50.0	50.0	50.0	49.8	41.1	32.3	23.6	14.8
95	50.0	50.0	50.0	50.0	50.0	50.0	47.0	38.3	29.5	20.7
100	50.0	50.0	50.0	50.0	50.0	50.0	50.0	44.2	35.4	26.7
110	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	47.3	38.5
120	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
130	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
140	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
150	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
160	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
170	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
180	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
190	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
200	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
210	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
220	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
230	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
240	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
250	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0

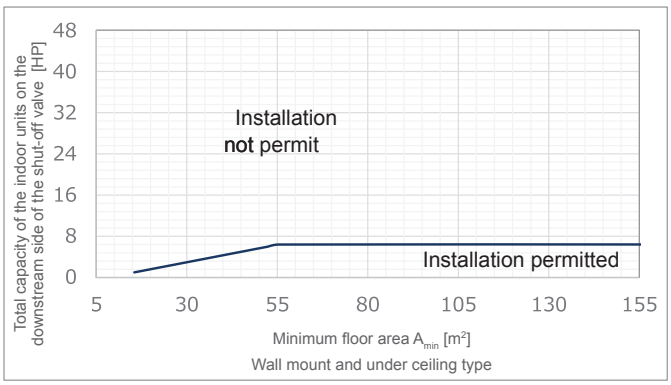
■ Shut-off Valve unit (4 HP type) In case that connection pipe length on the downstream side is 10 m.



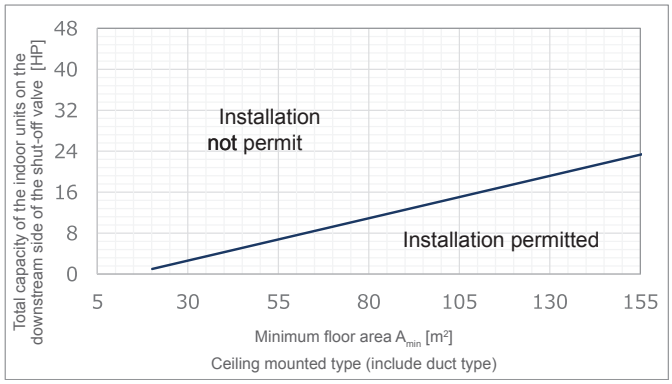


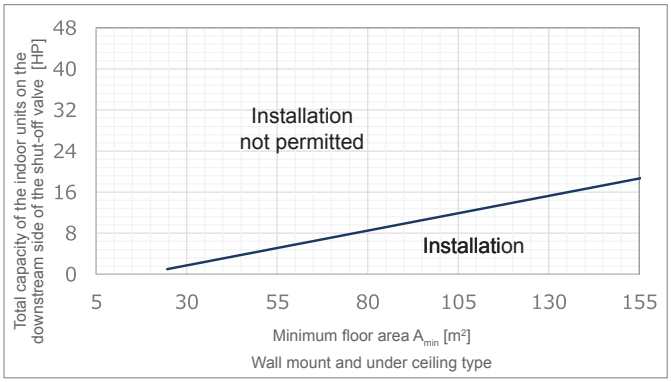
■ Shut-off Valve unit (6.4 HP type) In case that connection pipe length on the downstream side is 10 m.





■ Shut-off Valve unit (24 HP type) In case that connection pipe length on the downstream side is 10 m.





■ Shut-off valve unit (4HP and 6.4HP type)

□ Ceiling mounted type (include duct type)

Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m] Total capacity of indoor units on the downstream side of the shut-off valve [HP]						
	1 HP	2 HP	3 HP	4 HP	5 HP	6 HP	6.4 HP
5	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—
7	—	—	—	—	—	—	—
8	—	—	—	—	—	—	—
9	—	—	—	—	—	—	—
10	2.6	—	—	—	—	—	—
11	5.3	—	—	—	—	—	—
12	8.0	—	—	—	—	—	—
13	10.8	—	—	—	—	—	—
14	13.5	—	—	—	—	—	—
15	16.2	—	—	—	—	—	—
16	18.9	2.5	—	—	—	—	—
17	21.7	5.2	—	—	—	—	—
18	24.4	7.9	—	—	—	—	—
19	27.1	10.7	—	—	—	—	—
20	29.8	13.4	—	—	—	—	—
21	32.6	16.1	—	—	—	—	—
22	35.3	18.8	2.4	—	—	—	—
23	38.0	21.6	5.1	—	—	—	—
24	40.7	24.3	7.8	—	—	—	—
25	43.5	27.0	10.6	—	—	—	—
26	46.2	29.7	13.3	—	—	—	—
27	48.9	32.4	16.0	—	—	—	—
28	51.6	35.2	18.7	2.3	—	—	—
29	54.3	37.9	21.4	5.0	—	—	—
30	57.1	40.6	24.2	7.7	—	—	—
31	59.8	43.3	26.9	10.4	—	—	—
32	62.5	46.1	29.6	13.2	—	—	—
33	65.2	48.8	32.3	15.9	—	—	—
34	68.0	51.5	35.1	18.6	2.2	—	—
35	70.7	54.2	37.8	21.3	4.9	—	—
36	73.4	57.0	40.5	24.1	7.6	—	—
37	76.1	59.7	43.2	26.8	10.3	—	—
38	78.9	62.4	46.0	29.5	13.1	—	—
39	81.6	65.1	48.7	32.2	15.8	—	—
40	84.3	67.8	51.4	34.9	18.5	2.0	—
41	87.0	70.6	54.1	37.7	21.2	4.8	—
42	89.7	73.3	56.8	40.4	23.9	7.5	0.9
43	92.5	76.0	59.6	43.1	26.7	10.2	3.6
44	95.2	78.7	62.3	45.8	29.4	12.9	6.4
45	97.9	81.5	65.0	48.6	32.1	15.7	9.1
46	100.6	84.2	67.7	51.3	34.8	18.4	11.8
47	103.4	86.9	70.5	54.0	37.6	21.1	14.5
48	106.1	89.6	73.2	56.7	40.3	23.8	17.3
49	108.8	92.4	75.9	59.5	43.0	26.6	20.0
50	111.5	95.1	78.6	62.2	45.7	29.3	22.7
55	125.1	108.7	92.2	75.8	59.3	42.9	36.3
60	138.8	122.3	105.9	89.4	73.0	56.5	49.9
65	152.4	135.9	119.5	103.0	86.6	70.1	63.5
70	166.0	149.5	133.1	116.6	100.2	83.7	77.2
75	179.6	163.2	146.7	130.3	113.8	97.4	90.8
80	193.2	176.8	160.3	143.9	127.4	111.0	104.4
85	206.8	190.4	173.9	157.5	141.0	124.6	118.0
90	220.5	204.0	187.6	171.1	154.7	138.2	131.6
95	234.1	217.6	201.2	184.7	168.3	151.8	145.2
100	247.7	231.2	214.8	198.3	181.9	165.4	158.9
110	274.9	258.5	242.0	225.6	209.1	192.7	186.1
120	302.2	285.7	269.3	252.8	236.4	219.9	213.3
130	329.4	312.9	296.5	280.0	263.6	247.1	240.6
140	356.6	340.2	323.7	307.3	290.8	274.4	267.8
150	383.9	367.4	350.9	334.5	318.0	301.6	295.0
160	411.1	394.6	378.2	361.7	345.3	328.8	322.3
170	438.3	421.9	405.4	389.0	372.5	356.1	349.5
180	465.5	449.1	432.6	416.2	399.7	383.3	376.7
190	492.8	476.3	459.9	443.4	427.0	410.5	403.9
200	500.0	500.0	487.1	470.7	454.2	437.8	431.2
210	500.0	500.0	500.0	497.9	481.4	465.0	458.4
220	500.0	500.0	500.0	500.0	500.0	492.2	485.6
230	500.0	500.0	500.0	500.0	500.0	500.0	500.0
240	500.0	500.0	500.0	500.0	500.0	500.0	500.0
250	500.0	500.0	500.0	500.0	500.0	500.0	500.0

□ Wall mount and under ceiling type

Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]						
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]						
	1 HP	2 HP	3 HP	4 HP	5 HP	6 HP	6.4 HP
5	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—
7	—	—	—	—	—	—	—
8	—	—	—	—	—	—	—
9	—	—	—	—	—	—	—
10	—	—	—	—	—	—	—
11	—	—	—	—	—	—	—
12	2.1	—	—	—	—	—	—
13	4.3	—	—	—	—	—	—
14	6.6	—	—	—	—	—	—
15	8.8	—	—	—	—	—	—
16	11.0	—	—	—	—	—	—
17	13.2	—	—	—	—	—	—
18	15.5	—	—	—	—	—	—
19	17.7	1.3	—	—	—	—	—
20	19.9	3.5	—	—	—	—	—
21	22.2	5.7	—	—	—	—	—
22	24.4	7.9	—	—	—	—	—
23	26.6	10.2	—	—	—	—	—
24	28.8	12.4	—	—	—	—	—
25	31.1	14.6	—	—	—	—	—
26	33.3	16.9	0.4	—	—	—	—
27	35.5	19.1	2.6	—	—	—	—
28	37.8	21.3	4.9	—	—	—	—
29	40.0	23.5	7.1	—	—	—	—
30	42.2	25.8	9.3	—	—	—	—
31	44.4	28.0	11.5	—	—	—	—
32	46.7	30.2	13.8	—	—	—	—
33	48.9	32.4	16.0	—	—	—	—
34	51.1	34.7	18.2	1.8	—	—	—
35	53.4	36.9	20.5	4.0	—	—	—
36	55.6	39.1	22.7	6.2	—	—	—
37	57.8	41.4	24.9	8.5	—	—	—
38	60.0	43.6	27.1	10.7	—	—	—
39	62.3	45.8	29.4	12.9	—	—	—
40	64.5	48.0	31.6	15.1	—	—	—
41	66.7	50.3	33.8	17.4	0.9	—	—
42	69.0	52.5	36.0	19.6	3.1	—	—
43	71.2	54.7	38.3	21.8	5.4	—	—
44	73.4	57.0	40.5	24.1	7.6	—	—
45	75.6	59.2	42.7	26.3	9.8	—	—
46	77.9	61.4	45.0	28.5	12.1	—	—
47	80.1	63.6	47.2	30.7	14.3	—	—
48	82.3	65.9	49.4	33.0	16.5	0.1	—
49	84.5	68.1	51.6	35.2	18.7	2.3	—
50	86.8	70.3	53.9	37.4	21.0	4.5	—
55	97.9	81.5	65.0	48.6	32.1	15.7	9.1
60	109.1	92.6	76.2	59.7	43.3	26.8	20.2
65	120.2	103.7	87.3	70.8	54.4	37.9	31.4
70	131.3	114.9	98.4	82.0	65.5	49.1	42.5
75	142.5	126.0	109.6	93.1	76.7	60.2	53.6
80	153.6	137.2	120.7	104.3	87.8	71.4	64.8
85	164.8	148.3	131.9	115.4	99.0	82.5	75.9
90	175.9	159.4	143.0	126.5	110.1	93.6	87.1
95	187.0	170.6	154.1	137.7	121.2	104.8	98.2
100	198.2	181.7	165.3	148.8	132.4	115.9	109.3
110	220.5	204.0	187.6	171.1	154.7	138.2	131.6
120	242.7	226.3	209.8	193.4	176.9	160.5	153.9
130	265.0	248.6	232.1	215.7	199.2	182.8	176.2
140	287.3	270.9	254.4	237.9	221.5	205.0	198.5
150	309.6	293.1	276.7	260.2	243.8	227.3	220.7
160	331.9	315.4	299.0	282.5	266.1	249.6	243.0
170	354.1	337.7	321.2	304.8	288.3	271.9	265.3
180	376.4	360.0	343.5	327.1	310.6	294.2	287.6
190	398.7	382.3	365.8	349.4	332.9	316.5	309.9
200	421.0	404.5	388.1	371.6	355.2	338.7	332.2
210	443.3	426.8	410.4	393.9	377.5	361.0	354.4
220	465.5	449.1	432.6	416.2	399.7	383.3	376.7
230	487.8	471.4	454.9	438.5	422.0	405.6	399.0
240	500.0	493.7	477.2	460.8	444.3	427.9	421.3
250	500.0	500.0	499.5	483.0	466.6	450.1	443.6

■ Shut-off valve unit (24HP type)
□ Ceiling mounted type (include duct type)

Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]												
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]												
	1 HP	2 HP	3 HP	4 HP	5 HP	6 HP	7 HP	8 HP	9 HP	10 HP	12 HP	14 HP	16 HP
5	—	—	—	—	—	—	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—	—	—	—	—	—	—
7	—	—	—	—	—	—	—	—	—	—	—	—	—
8	—	—	—	—	—	—	—	—	—	—	—	—	—
9	—	—	—	—	—	—	—	—	—	—	—	—	—
10	0.8	—	—	—	—	—	—	—	—	—	—	—	—
11	1.7	—	—	—	—	—	—	—	—	—	—	—	—
12	2.6	—	—	—	—	—	—	—	—	—	—	—	—
13	3.5	—	—	—	—	—	—	—	—	—	—	—	—
14	4.4	—	—	—	—	—	—	—	—	—	—	—	—
15	5.3	—	—	—	—	—	—	—	—	—	—	—	—
16	6.2	0.8	—	—	—	—	—	—	—	—	—	—	—
17	7.1	1.7	—	—	—	—	—	—	—	—	—	—	—
18	8.0	2.6	—	—	—	—	—	—	—	—	—	—	—
19	8.9	3.5	—	—	—	—	—	—	—	—	—	—	—
20	9.8	4.4	—	—	—	—	—	—	—	—	—	—	—
21	10.7	5.3	—	—	—	—	—	—	—	—	—	—	—
22	11.6	6.2	0.8	—	—	—	—	—	—	—	—	—	—
23	12.5	7.1	1.7	—	—	—	—	—	—	—	—	—	—
24	13.4	8.0	2.6	—	—	—	—	—	—	—	—	—	—
25	14.3	8.9	3.5	—	—	—	—	—	—	—	—	—	—
26	15.2	9.8	4.4	—	—	—	—	—	—	—	—	—	—
27	16.1	10.7	5.2	—	—	—	—	—	—	—	—	—	—
28	17.0	11.6	6.1	0.7	—	—	—	—	—	—	—	—	—
29	17.9	12.5	7.0	1.6	—	—	—	—	—	—	—	—	—
30	18.8	13.4	7.9	2.5	—	—	—	—	—	—	—	—	—
31	19.7	14.3	8.8	3.4	—	—	—	—	—	—	—	—	—
32	20.6	15.2	9.7	4.3	—	—	—	—	—	—	—	—	—
33	21.5	16.1	10.6	5.2	—	—	—	—	—	—	—	—	—
34	22.4	17.0	11.5	6.1	0.7	—	—	—	—	—	—	—	—
35	23.3	17.9	12.4	7.0	1.6	—	—	—	—	—	—	—	—
36	24.2	18.8	13.3	7.9	2.5	—	—	—	—	—	—	—	—
37	25.1	19.7	14.2	8.8	3.4	—	—	—	—	—	—	—	—
38	26.0	20.6	15.1	9.7	4.3	—	—	—	—	—	—	—	—
39	26.9	21.5	16.0	10.6	5.2	—	—	—	—	—	—	—	—
40	27.8	22.4	16.9	11.5	6.1	0.6	—	—	—	—	—	—	—
41	28.7	23.3	17.8	12.4	7.0	1.5	—	—	—	—	—	—	—
42	29.6	24.2	18.7	13.3	7.9	2.4	—	—	—	—	—	—	—
43	30.5	25.1	19.6	14.2	8.8	3.3	—	—	—	—	—	—	—
44	31.4	26.0	20.5	15.1	9.7	4.2	—	—	—	—	—	—	—
45	32.3	26.9	21.4	16.0	10.6	5.1	—	—	—	—	—	—	—
46	33.2	27.8	22.3	16.9	11.5	6.0	0.6	—	—	—	—	—	—
47	34.1	28.7	23.2	17.8	12.4	6.9	1.5	—	—	—	—	—	—
48	35.0	29.6	24.1	18.7	13.3	7.8	2.4	—	—	—	—	—	—
49	35.9	30.5	25.0	19.6	14.2	8.7	3.3	—	—	—	—	—	—
50	36.8	31.4	25.9	20.5	15.1	9.6	4.2	—	—	—	—	—	—
55	41.3	35.9	30.4	25.0	19.6	14.1	8.7	3.3	—	—	—	—	—
60	45.8	40.4	34.9	29.5	24.1	18.6	13.2	7.8	2.3	—	—	—	—
65	50.3	44.9	39.4	34.0	28.6	23.1	17.7	12.3	6.8	1.4	—	—	—
70	54.8	49.4	43.9	38.5	33.1	27.6	22.2	16.8	11.3	5.9	—	—	—
75	59.3	53.9	48.4	43.0	37.6	32.1	26.7	21.3	15.8	10.4	—	—	—
80	63.8	58.3	52.9	47.5	42.1	36.6	31.2	25.8	20.3	14.9	4.0	—	—
85	68.3	62.8	57.4	52.0	46.5	41.1	35.7	30.2	24.8	19.4	8.5	—	—
90	72.8	67.3	61.9	56.5	51.0	45.6	40.2	34.7	29.3	23.9	13.0	2.1	—
95	77.3	71.8	66.4	61.0	55.5	50.1	44.7	39.2	33.8	28.4	17.5	6.6	—
100	81.8	76.3	70.9	65.5	60.0	54.6	49.2	43.7	38.3	32.9	22.0	11.1	0.3
110	90.8	85.3	79.9	74.5	69.0	63.6	58.2	52.7	47.3	41.9	31.0	20.1	9.3
120	99.8	94.3	88.9	83.5	78.0	72.6	67.2	61.7	56.3	50.9	40.0	29.1	18.3
130	108.8	103.3	97.9	92.5	87.0	81.6	76.2	70.7	65.3	59.9	49.0	38.1	27.3
140	117.7	112.3	106.9	101.4	96.0	90.6	85.1	79.7	74.3	68.8	58.0	47.1	36.2
150	126.7	121.3	115.9	110.4	105.0	99.6	94.1	88.7	83.3	77.8	67.0	56.1	45.2
160	135.7	130.3	124.9	119.4	114.0	108.6	103.1	97.7	92.3	86.8	76.0	65.1	54.2
170	144.7	139.3	133.9	128.4	123.0	117.6	112.1	106.7	101.3	95.8	85.0	74.1	63.2
180	153.7	148.3	142.9	137.4	132.0	126.6	121.1	115.7	110.3	104.8	94.0	83.1	72.2
190	162.7	157.3	151.8	146.4	141.0	135.5	130.1	124.7	119.2	113.8	102.9	92.1	81.2
200	171.7	166.3	160.8	155.4	150.0	144.5	139.1	133.7	128.2	122.8	111.9	101.1	90.2
210	180.7	175.3	169.8	164.4	159.0	153.5	148.1	142.7	137.2	131.8	120.9	110.1	99.2
220	189.7	184.3	178.8	173.4	168.0	162.5	157.1	151.7	146.2	140.8	129.9	119.1	108.2
230	198.7	193.3	187.8	182.4	177.0	171.5	166.1	160.7	155.2	149.8	138.9	128.1	117.2
240	207.7	202.2	196.8	191.4	185.9	180.5	175.1	169.6	164.2	158.8	147.9	137.1	126.2
250	216.7	211.2	205.8	200.4	194.9	189.5	184.1	178.6	173.2	167.8	156.9	146.0	135.2

Minimum floor area A_{min} [m^2]	Connectable pipe length to the downstream side of the shut-off valve [m]									
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]									
	18 HP	20 HP	22 HP	24 HP	28 HP	32 HP	36 HP	40 HP	44 HP	48 HP
5	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-
33	-	-	-	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	-	-	-
35	-	-	-	-	-	-	-	-	-	-
36	-	-	-	-	-	-	-	-	-	-
37	-	-	-	-	-	-	-	-	-	-
38	-	-	-	-	-	-	-	-	-	-
39	-	-	-	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-
41	-	-	-	-	-	-	-	-	-	-
42	-	-	-	-	-	-	-	-	-	-
43	-	-	-	-	-	-	-	-	-	-
44	-	-	-	-	-	-	-	-	-	-
45	-	-	-	-	-	-	-	-	-	-
46	-	-	-	-	-	-	-	-	-	-
47	-	-	-	-	-	-	-	-	-	-
48	-	-	-	-	-	-	-	-	-	-
49	-	-	-	-	-	-	-	-	-	-
50	-	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-	-	-
60	-	-	-	-	-	-	-	-	-	-
65	-	-	-	-	-	-	-	-	-	-
70	-	-	-	-	-	-	-	-	-	-
75	-	-	-	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-	-	-	-
85	-	-	-	-	-	-	-	-	-	-
90	-	-	-	-	-	-	-	-	-	-
95	-	-	-	-	-	-	-	-	-	-
100	-	-	-	-	-	-	-	-	-	-
110	-	-	-	-	-	-	-	-	-	-
120	7.4	-	-	-	-	-	-	-	-	-
130	16.4	5.5	-	-	-	-	-	-	-	-
140	25.4	14.5	3.7	-	-	-	-	-	-	-
150	34.4	23.5	12.6	1.8	-	-	-	-	-	-
160	43.4	32.5	21.6	10.8	-	-	-	-	-	-
170	52.4	41.5	30.6	19.8	-	-	-	-	-	-
180	61.4	50.5	39.6	28.8	7.0	-	-	-	-	-
190	70.4	59.5	48.6	37.8	16.0	-	-	-	-	-
200	79.3	68.5	57.6	46.7	25.0	3.3	-	-	-	-
210	88.3	77.5	66.6	55.7	34.0	12.3	-	-	-	-
220	97.3	86.5	75.6	64.7	43.0	21.3	-	-	-	-
230	106.3	95.5	84.6	73.7	52.0	30.3	-	-	-	-
240	115.3	104.5	93.6	82.7	61.0	39.3	-	-	-	-
250	124.3	113.4	102.6	91.7	70.0	48.3	-	-	-	-

☐ Wall mount and under ceiling type

Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]												
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]												
	1 HP	2 HP	3 HP	4 HP	5 HP	6 HP	7 HP	8 HP	9 HP	10 HP	12 HP	14 HP	16 HP
5	—	—	—	—	—	—	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—	—	—	—	—	—	—
7	—	—	—	—	—	—	—	—	—	—	—	—	—
8	—	—	—	—	—	—	—	—	—	—	—	—	—
9	—	—	—	—	—	—	—	—	—	—	—	—	—
10	—	—	—	—	—	—	—	—	—	—	—	—	—
11	—	—	—	—	—	—	—	—	—	—	—	—	—
12	0.7	—	—	—	—	—	—	—	—	—	—	—	—
13	1.4	—	—	—	—	—	—	—	—	—	—	—	—
14	2.1	—	—	—	—	—	—	—	—	—	—	—	—
15	2.9	—	—	—	—	—	—	—	—	—	—	—	—
16	3.6	—	—	—	—	—	—	—	—	—	—	—	—
17	4.3	—	—	—	—	—	—	—	—	—	—	—	—
18	5.1	—	—	—	—	—	—	—	—	—	—	—	—
19	5.8	0.4	—	—	—	—	—	—	—	—	—	—	—
20	6.5	1.1	—	—	—	—	—	—	—	—	—	—	—
21	7.3	1.9	—	—	—	—	—	—	—	—	—	—	—
22	8.0	2.6	—	—	—	—	—	—	—	—	—	—	—
23	8.8	3.3	—	—	—	—	—	—	—	—	—	—	—
24	9.5	4.1	—	—	—	—	—	—	—	—	—	—	—
25	10.2	4.8	—	—	—	—	—	—	—	—	—	—	—
26	11.0	5.5	0.1	—	—	—	—	—	—	—	—	—	—
27	11.7	6.3	0.8	—	—	—	—	—	—	—	—	—	—
28	12.4	7.0	1.6	—	—	—	—	—	—	—	—	—	—
29	13.2	7.7	2.3	—	—	—	—	—	—	—	—	—	—
30	13.9	8.5	3.0	—	—	—	—	—	—	—	—	—	—
31	14.6	9.2	3.8	—	—	—	—	—	—	—	—	—	—
32	15.4	9.9	4.5	—	—	—	—	—	—	—	—	—	—
33	16.1	10.7	5.2	—	—	—	—	—	—	—	—	—	—
34	16.9	11.4	6.0	0.6	—	—	—	—	—	—	—	—	—
35	17.6	12.2	6.7	1.3	—	—	—	—	—	—	—	—	—
36	18.3	12.9	7.5	2.0	—	—	—	—	—	—	—	—	—
37	19.1	13.6	8.2	2.8	—	—	—	—	—	—	—	—	—
38	19.8	14.4	8.9	3.5	—	—	—	—	—	—	—	—	—
39	20.5	15.1	9.7	4.2	—	—	—	—	—	—	—	—	—
40	21.3	15.8	10.4	5.0	—	—	—	—	—	—	—	—	—
41	22.0	16.6	11.1	5.7	0.3	—	—	—	—	—	—	—	—
42	22.7	17.3	11.9	6.4	1.0	—	—	—	—	—	—	—	—
43	23.5	18.0	12.6	7.2	1.7	—	—	—	—	—	—	—	—
44	24.2	18.8	13.3	7.9	2.5	—	—	—	—	—	—	—	—
45	24.9	19.5	14.1	8.6	3.2	—	—	—	—	—	—	—	—
46	25.7	20.2	14.8	9.4	3.9	—	—	—	—	—	—	—	—
47	26.4	21.0	15.6	10.1	4.7	—	—	—	—	—	—	—	—
48	27.2	21.7	16.3	10.9	5.4	0.0	—	—	—	—	—	—	—
49	27.9	22.5	17.0	11.6	6.2	0.7	—	—	—	—	—	—	—
50	28.6	23.2	17.8	12.3	6.9	1.5	—	—	—	—	—	—	—
55	32.3	26.9	21.4	16.0	10.6	5.1	—	—	—	—	—	—	—
60	36.0	30.6	25.1	19.7	14.3	8.8	3.4	—	—	—	—	—	—
65	39.7	34.2	28.8	23.4	17.9	12.5	7.1	1.6	—	—	—	—	—
70	43.3	37.9	32.5	27.0	21.6	16.2	10.7	5.3	—	—	—	—	—
75	47.0	41.6	36.2	30.7	25.3	19.9	14.4	9.0	3.6	—	—	—	—
80	50.7	45.3	39.8	34.4	29.0	23.5	18.1	12.7	7.2	1.8	—	—	—
85	54.4	48.9	43.5	38.1	32.6	27.2	21.8	16.3	10.9	5.5	—	—	—
90	58.1	52.6	47.2	41.8	36.3	30.9	25.5	20.0	14.6	9.2	—	—	—
95	61.7	56.3	50.9	45.4	40.0	34.6	29.1	23.7	18.3	12.8	2.0	—	—
100	65.4	60.0	54.6	49.1	43.7	38.3	32.8	27.4	22.0	16.5	5.7	—	—
110	72.8	67.3	61.9	56.5	51.0	45.6	40.2	34.7	29.3	23.9	13.0	2.1	—
120	80.1	74.7	69.3	63.8	58.4	53.0	47.5	42.1	36.7	31.2	20.4	9.5	—
130	87.5	82.1	76.6	71.2	65.8	60.3	54.9	49.5	44.0	38.6	27.7	16.9	6.0
140	94.9	89.4	84.0	78.6	73.1	67.7	62.3	56.8	51.4	46.0	35.1	24.2	13.4
150	102.2	96.8	91.3	85.9	80.5	75.0	69.6	64.2	58.7	53.3	42.4	31.6	20.7
160	109.6	104.1	98.7	93.3	87.8	82.4	77.0	71.5	66.1	60.7	49.8	38.9	28.1
170	116.9	111.5	106.1	100.6	95.2	89.8	84.3	78.9	73.5	68.0	57.2	46.3	35.4
180	124.3	118.9	113.4	108.0	102.6	97.1	91.7	86.3	80.8	75.4	64.5	53.7	42.8
190	131.6	126.2	120.8	115.3	109.9	104.5	99.0	93.6	88.2	82.7	71.9	61.0	50.1
200	139.0	133.6	128.1	122.7	117.3	111.8	106.4	101.0	95.5	90.1	79.2	68.4	57.5
210	146.4	140.9	135.5	130.1	124.6	119.2	113.8	108.3	102.9	97.5	86.6	75.7	64.9
220	153.7	148.3	142.9	137.4	132.0	126.6	121.1	115.7	110.3	104.8	94.0	83.1	72.2
230	161.1	155.6	150.2	144.8	139.3	133.9	128.5	123.0	117.6	112.2	101.3	90.4	79.6
240	168.4	163.0	157.6	152.1	146.7	141.3	135.8	130.4	125.0	119.5	108.7	97.8	86.9
250	175.8	170.4	164.9	159.5	154.1	148.6	143.2	137.8	132.3	126.9	116.0	105.2	94.3

Minimum floor area Amin [m2]	Connectable pipe length to the downstream side of the shut-off valve [m]									
	Total capacity of indoor units on the downstream side of the shut-off valve [HP]									
	18 HP	20 HP	22 HP	24 HP	28 HP	32 HP	36 HP	40 HP	44 HP	48 HP
5	—	—	—	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—	—	—	—
7	—	—	—	—	—	—	—	—	—	—
8	—	—	—	—	—	—	—	—	—	—
9	—	—	—	—	—	—	—	—	—	—
10	—	—	—	—	—	—	—	—	—	—
11	—	—	—	—	—	—	—	—	—	—
12	—	—	—	—	—	—	—	—	—	—
13	—	—	—	—	—	—	—	—	—	—
14	—	—	—	—	—	—	—	—	—	—
15	—	—	—	—	—	—	—	—	—	—
16	—	—	—	—	—	—	—	—	—	—
17	—	—	—	—	—	—	—	—	—	—
18	—	—	—	—	—	—	—	—	—	—
19	—	—	—	—	—	—	—	—	—	—
20	—	—	—	—	—	—	—	—	—	—
21	—	—	—	—	—	—	—	—	—	—
22	—	—	—	—	—	—	—	—	—	—
23	—	—	—	—	—	—	—	—	—	—
24	—	—	—	—	—	—	—	—	—	—
25	—	—	—	—	—	—	—	—	—	—
26	—	—	—	—	—	—	—	—	—	—
27	—	—	—	—	—	—	—	—	—	—
28	—	—	—	—	—	—	—	—	—	—
29	—	—	—	—	—	—	—	—	—	—
30	—	—	—	—	—	—	—	—	—	—
31	—	—	—	—	—	—	—	—	—	—
32	—	—	—	—	—	—	—	—	—	—
33	—	—	—	—	—	—	—	—	—	—
34	—	—	—	—	—	—	—	—	—	—
35	—	—	—	—	—	—	—	—	—	—
36	—	—	—	—	—	—	—	—	—	—
37	—	—	—	—	—	—	—	—	—	—
38	—	—	—	—	—	—	—	—	—	—
39	—	—	—	—	—	—	—	—	—	—
40	—	—	—	—	—	—	—	—	—	—
41	—	—	—	—	—	—	—	—	—	—
42	—	—	—	—	—	—	—	—	—	—
43	—	—	—	—	—	—	—	—	—	—
44	—	—	—	—	—	—	—	—	—	—
45	—	—	—	—	—	—	—	—	—	—
46	—	—	—	—	—	—	—	—	—	—
47	—	—	—	—	—	—	—	—	—	—
48	—	—	—	—	—	—	—	—	—	—
49	—	—	—	—	—	—	—	—	—	—
50	—	—	—	—	—	—	—	—	—	—
55	—	—	—	—	—	—	—	—	—	—
60	—	—	—	—	—	—	—	—	—	—
65	—	—	—	—	—	—	—	—	—	—
70	—	—	—	—	—	—	—	—	—	—
75	—	—	—	—	—	—	—	—	—	—
80	—	—	—	—	—	—	—	—	—	—
85	—	—	—	—	—	—	—	—	—	—
90	—	—	—	—	—	—	—	—	—	—
95	—	—	—	—	—	—	—	—	—	—
100	—	—	—	—	—	—	—	—	—	—
110	—	—	—	—	—	—	—	—	—	—
120	—	—	—	—	—	—	—	—	—	—
130	—	—	—	—	—	—	—	—	—	—
140	2.5	—	—	—	—	—	—	—	—	—
150	9.8	—	—	—	—	—	—	—	—	—
160	17.2	6.3	—	—	—	—	—	—	—	—
170	24.6	13.7	2.8	—	—	—	—	—	—	—
180	31.9	21.1	10.2	—	—	—	—	—	—	—
190	39.3	28.4	17.6	6.7	—	—	—	—	—	—
200	46.6	35.8	24.9	14.0	—	—	—	—	—	—
210	54.0	43.1	32.3	21.4	—	—	—	—	—	—
220	61.4	50.5	39.6	28.8	7.0	—	—	—	—	—
230	68.7	57.9	47.0	36.1	14.4	—	—	—	—	—
240	76.1	65.2	54.3	43.5	21.7	0.0	—	—	—	—
250	83.4	72.6	61.7	50.8	29.1	7.4	—	—	—	—

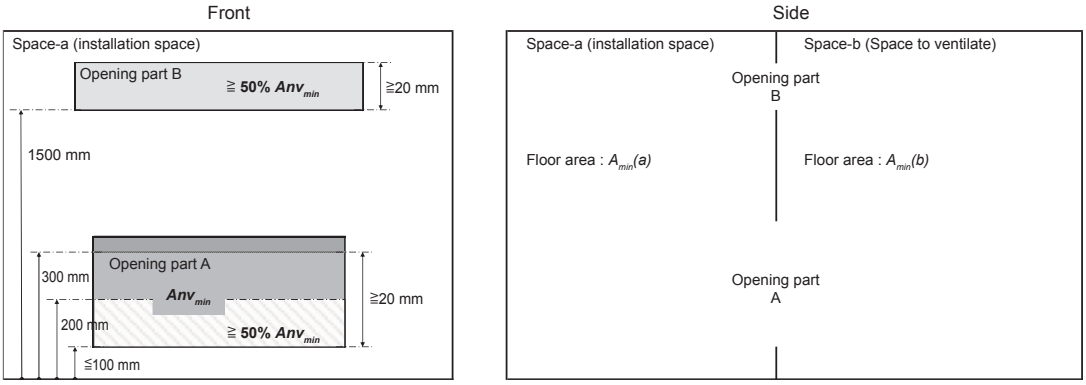
⑤ [To determine the limit on the amount of additional refrigerant]

Determine the smallest room area to calculate the total allowable refrigerant charge limit in the system. The area of the smallest room being served by the system is decided in the following contents to determine the maximum allowable total charge of the system.

(1) The area of a room can be determined by projecting walls, doors and partitions onto the floor and calculating from the enclosed area.
(2) Spaces connected by only false ceilings, ductwork, or similar connections shall not be considered a single space.
(3) If the partition between 2 rooms on the same floor meets certain requirements then the rooms are considered as one room and the areas of the rooms may be added up. In this way, it is possible to increase the Amin value used to calculate the maximum allowed charge.
One of the following 2 requirements shall be met to add up room areas.

1) A room on the same floor, connected by a permanent opening that extends to the floor, and is intended for people to pass through, and can be considered as a single room.
2) Rooms on the same floor that are connected by openings that meet the following conditions can be considered as one room.
The opening shall consist of two parts to allow air circulation.

- A_{min} (a) + A_{min}(b) ≧ m_c / (0.25 × LFL × H) = m_c / 0.04605 (m^2)
- An_{min} > 0.0123 [m^2]



For the lower opening :
the opening can't be connected to the outdoors.
the opening can't be closed.
the lower opening shall be ≥0.012 m² (minimum opening area for natural ventilation [Anvmin]). areas of openings above 300 mm from the floor are not included in the calculation when determining Anvmin.
50% of Anvmin or more is less than 200 mm from the floor.
the bottom of the bottom opening is 100 mm or less from the floor
the height of the opening is ≧ 20mm.

For the upper opening :
the opening can't be connected to the outdoors.
the opening can't be closed.
the upper opening shall be ≥0.006 m² (50% of Anvmin).
the bottom of the upper opening shall be at least 1500 mm from the floor.
the height of the opening is ≧ 20mm.

Note
The requirements for the upper opening can be met by a drop ceiling, ventilation

(4) Connect both the air inlet and outlet directly to the same room.
(5) Do not use a space such as a false ceiling as the air inlet or the outlet of the duct.
(6) There shall be no auxiliary device (for example, an electric switch device whose surface is 700 ° C) that can be a potential ignition source in the duct work.
(7) Only equipment approved by the manufacturer shall be used for duct work.

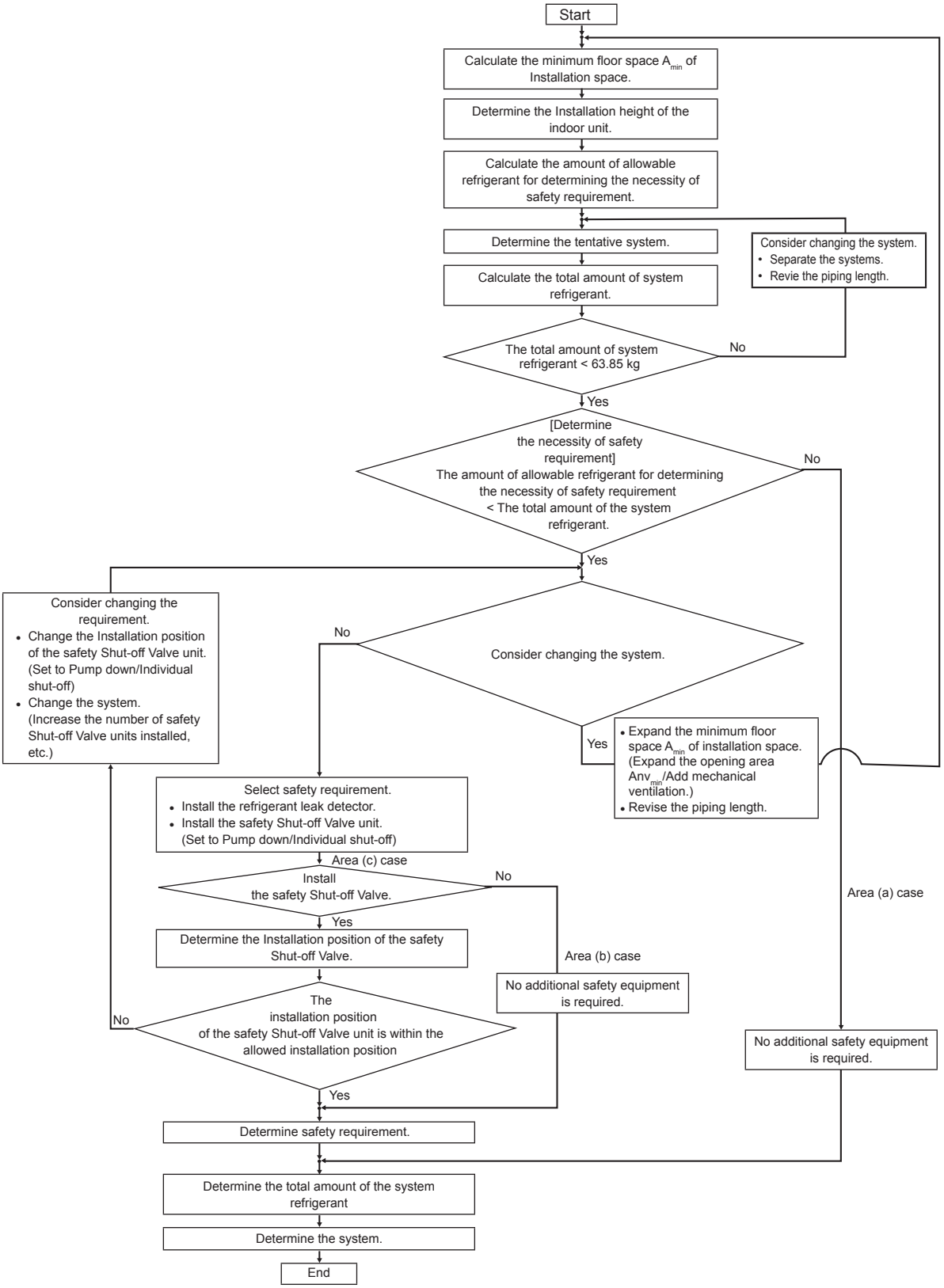
⚠ CAUTION

For appliances connected via an air duct system to one or more rooms using an A2L refrigerant

– which include a separate section with refrigerant containing components except pipes (e.g. compressors, condensers), and
– which are isolated from the airflow and located in a room smaller than minimum floor area [Amin]
then IEC 60335-2-40 Clause GG.4 (ventilated enclosure) can be applied, where the required ventilation can be provided by the ventilation system.
That section shall have an opening to the outdoor or indoor air-stream to be able to ventilate the refrigerant to an area in compliance with Annex GG.

■ Safety measure selection flow

Based on the installation conditions calculated above, determine the installation specifications according to the following safety measure selection flow.



■ How to set up the CODE No. [107] (Safety measures)

• It is necessary to set up safety measures.

• If the settings and actual connections are different, the system will not be able to operate.

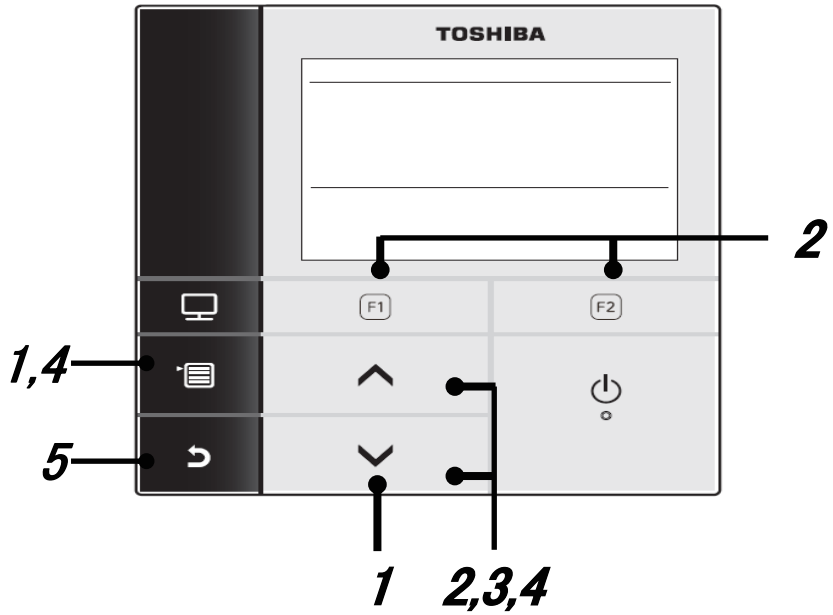
0：No safety equipment is require

1：Pump-down operation

2：Individual shut-off operation

3：Only refrigerant leak detector

1. Push and hold " MENU" button and [∨] setting button simultaneously for 4 seconds or more.
2. Select the ”DN setting" using the [∨] and [∧] button and push the "F2(Set)" button. Select the corresponding ”Indoor unit" using the "F1(Unit)" button and push the "F2(Set)" button. (The fan and louvers of the selected indoor unit will be activated.)
3. Set the Indoor Unit Function Code (I.DN) to [107] and the data using the [∨] and [∧] button. (The fan of the selected indoor unit is turned on.)
4. When done, Push the " MENU" button.
5. Push the " CANCEL" button and complete the setting for the time being.



■ How to set up the CODE No. [108] (Circulation flow operation mode of the indoor unit)

• It is necessary to set whether or not the indoor unit is in circulation flow operation when refrigerant leakage is detected.

• If the CODE No. [107] sets to 2 (Individual shut-off operation), circulation flow operation is not performed even if the CODE No. [108] sets to 0.

0：Circulation flow operation

1：Not circulation flow operation

1. Push and hold " MENU" button and [∨] setting button simultaneously for 4 seconds or more.
2. Select the ”DN setting" using the [∨] and [∧] button and Push the "F2(Set)" button. Select the corresponding ”Indoor unit" using the "F1(Unit)" button and push the "F2(Set)" button.(The fan and louvers of the selected indoor unit will be activated.)
3. Set the Indoor Unit Function Code (I.DN) to [108] and the data using the [∨] and [∧] button. (The fan of the selected indoor unit is turned on.)
4. When done, Push the " MENU" button.
5. Push the " Back" button and complete the setting for the time being.

: Outdoor unit　FS-S : FS unit Single-port type　: Remote controller　: Piping

: Indoor unit　FS-M : FS unit Multi-port type　: Leak detector　: Control wiring

BH : Branch header pipe　SV : Shut-off valve unit　: Battery kit

◆ [Set up example]

[0F] : Cooling only setup
- 0 : Heat pump
- 1 : Cooling only

[14] : Group address
- 0 : Individual
- 1 : Header unit
- 2 : Follower unit

[FE] : Branching system address
- • Should not be duplicate in one system.
- • Factory default : Un

[105] : FS unit and shut-off valve unit port address (1~12)
- • As for multi port type FS unit, set up within the range of 1~12.
- • As for both single port type FS unit and shut-off valve unit, set up CODE No. “105” to 1.

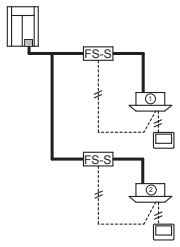
※ For the FS unit Multi-port type, set the port address of code number [105] and the port number of the FS unit multi-port type to be the same.

[106] : Combining branches mode of the multi port type FS unit
- 0 : NOT combining branches mode
- 1 : Combining branches mode

[107] : Safety measures
- 0 : No safety equipment is required
- 1 : Pump-down operation
- 2 : Individual shut-off operation
- 3 : Only refrigerant leak detection

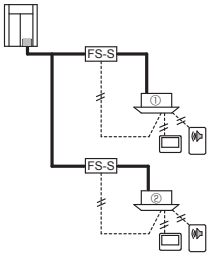
[108] : Circulation flow operation mode of the indoor unit
- 0 : Circulation flow operation
- 1 : Not circulation flow operation

In case of connecting one indoor unit to single port type Flow Selector unit.



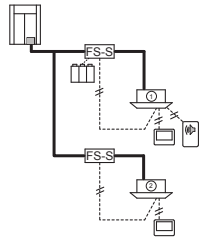
Indoor unit	①	②
[14]	0	0
[FE]	1	2
[105]	1	1
[106]	0	0
[107]	0	0
[108]	0	0

In case of connecting one indoor unit to single port type Flow Selector unit, and connecting leak detector, and there are multiple in the system.



Indoor unit	①	②
[14]	0	0
[FE]	1	2
[105]	1	1
[106]	0	0
[107]	3	3
[108]	0	0

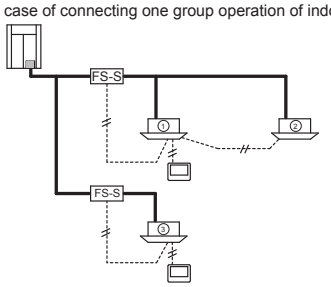
In case of connecting one indoor unit and safety measures to single port type Flow Selector unit.



Indoor unit	①	②
[14]	0	0
[FE]	1	2
[105]	1	1
[106]	0	0
[107]	1 or 2	0
[108]	0 or 1※	0

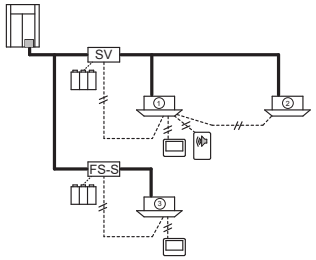
※ When you set up CODE No. “107” to 2, please set up CODE No. “108” to 1.

In case of connecting one group operation of indoor units to single port type Flow Selector unit.



Indoor unit	①	②	③
[14]	1	2	0
[FE]	1	1	2
[105]	1	1	1
[106]	0	0	0
[107]	0	0	0
[108]	0	0	0

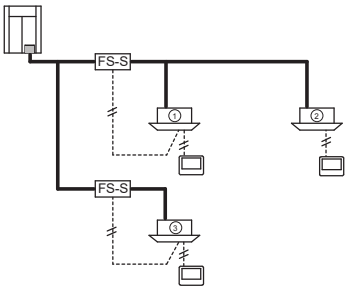
In case of connecting one group operation of indoor units and safety measures to shut-off valve unit.



Indoor unit	①	②	③
[0F]	1	1	0
[14]	1	2	0
[FE]	1	1	2
[105]	1	1	1
[106]	0	0	0
[107]	1 or 2※1	1 or 2※1	0
[108]	0 or 1※2	0 or 1※2	0

※1 It is necessary set up same No. in ① and ②.
※2 When you set up CODE No. “107” to 2, please set up CODE No. “108” to 1.

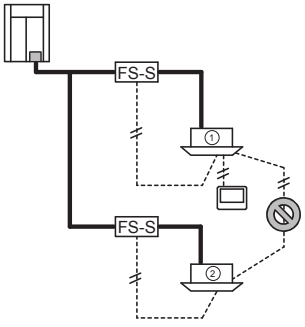
In case of connecting two indoor units to single port type Flow Selector unit.



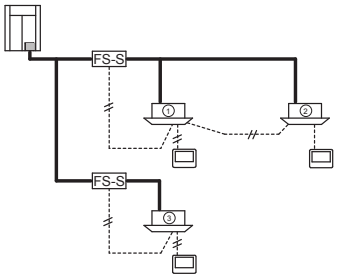
Indoor unit	①	②	③
[14]	0	0	0
[FE]	1	1	2
[105]	1	1	1
[106]	0	0	0
[107]	0	0	0
[108]	0	0	0

In correct connection example.

※ Cannot operate due to check code "J03".



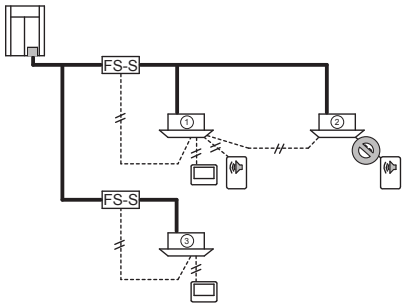
In case of connecting one indoor unit to single port type FS unit.



Indoor unit	①	②	③
[14]	1	2	0
[FE]	1	1	2
[105]	1	1	1
[106]	0	0	0
[107]	0	0	0
[108]	0	0	0

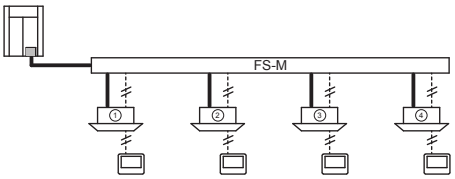
Incorrect connection

※ It may cause unintended user behavior.



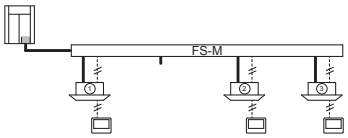
In case of connecting one indoor unit to one port of multi port type Flow Selector unit.

※ Cannot operate due to check code "J03".



Indoor unit	①	②	③	④
[14]	0	0	0	0
[FE]	1	1	1	1
[105]	1	2	3	4
[106]	0	0	0	0
[107]	0	0	0	0
[108]	0	0	0	0

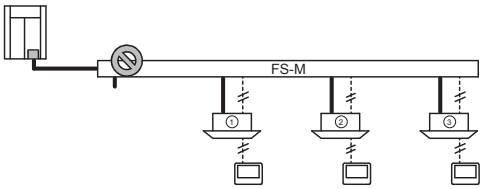
In case of connecting one indoor unit and not connecting indoor unit to one port of multi port type Flow Selector unit.



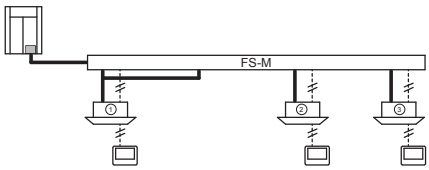
Indoor unit	①	②	③
[14]	0	0	0
[FE]	1	1	1
[105]	1	3	4
[106]	0	0	0
[107]	0	0	0
[108]	0	0	0

In correct connection.

※ Cannot operate due to check code "L13".

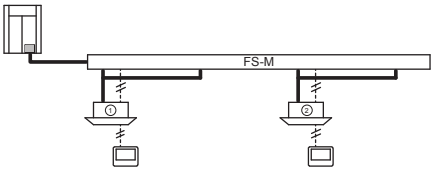


In case of connecting to combining branches of multi port type Flow Selector unit.



Indoor unit	①	②	③
[14]	0	0	0
[FE]	1	1	1
[105]	1	3	4
[106]	1	0	0
[107]	0	0	0
[108]	0	0	0

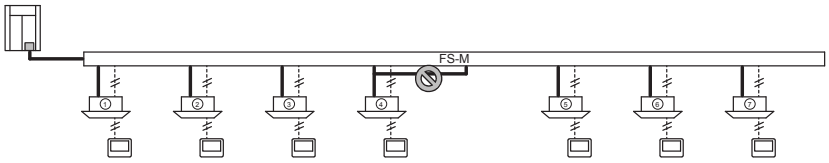
In case of connecting to combining branches of multi port type Flow Selector unit, and there are multiple in the system.



Indoor unit	①	②
[14]	0	0
[FE]	1	1
[105]	1	3
[106]	1	1
[107]	0	0
[108]	0	0

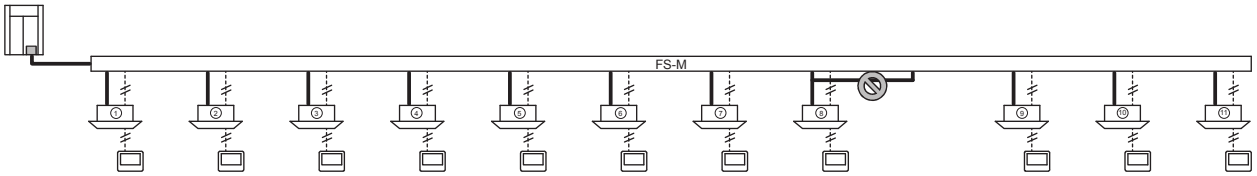
Incorrect connection.

※ "Even-numbered port" and "even-numbered port +1" cannot be connected. It may cause unintended user behavior.



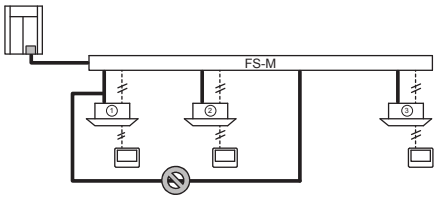
Incorrect connection.

※ "Even-numbered port" and "even-numbered port +1" cannot be connected. It may cause unintended user behavior.



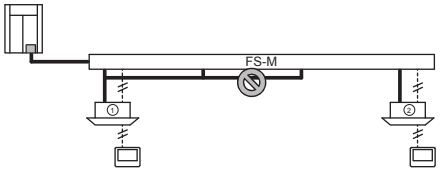
Incorrect connection.

※ Cannot operate due to check code "L13".

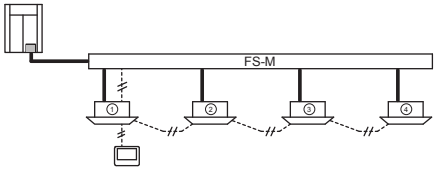


Incorrect connection.

※ Cannot be set.

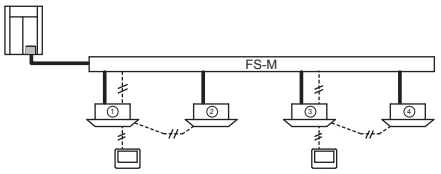


In case of one group operation of indoor units to multiple ports of multi port type Flow Selector unit.



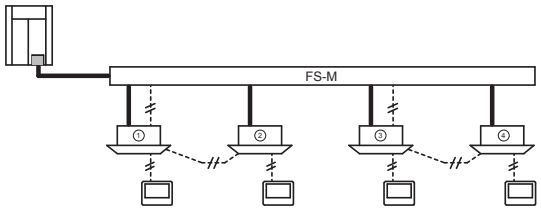
Indoor unit	①	②	③	④
[14]	1	2	2	2
[FE]	1	1	1	1
[105]	1	2	3	4
[106]	0	0	0	0
[107]	0	0	0	0
[108]	0	0	0	0

In case of two group operations of indoor units to multiple ports of multi port type Flow Selector unit.



Indoor unit	①	②	③	④
[14]	1	2	1	2
[FE]	1	1	1	1
[105]	1	2	3	4
[106]	0	0	0	0
[107]	0	0	0	0
[108]	0	0	0	0

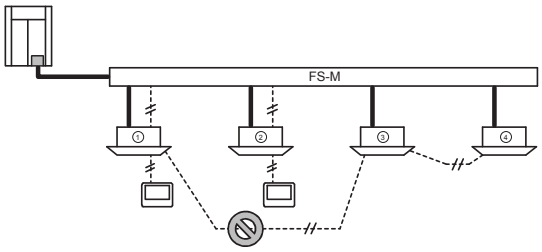
In case of connecting two group operation of indoor units to multiple ports of multi port type Flow Selector unit, and connecting two remote controllers to one group of indoor unit.



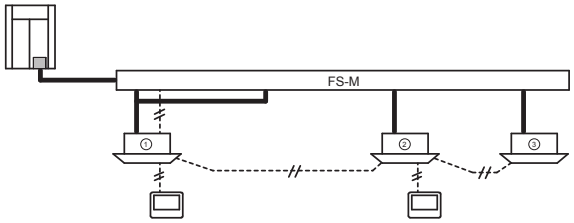
Indoor unit	①	②	③	④
[14]	1	2	1	2
[FE]	1	1	1	1
[105]	1	2	3	4
[106]	0	0	0	0
[107]	0	0	0	0
[108]	0	0	0	0

Incorrect connection.

※ It may cause unintended user behavior.

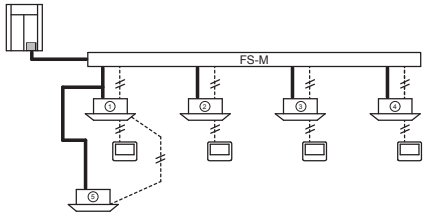


In case of connecting one group operation of indoor unit to multiple port and combining branches of multi port type Flow Selector unit.



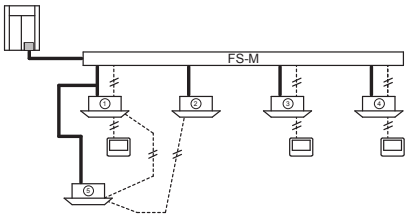
Indoor unit	①	②	③
[14]	1	2	2
[FE]	1	1	1
[105]	1	3	4
[106]	1	0	0
[107]	0	0	0
[108]	0	0	0

In case of connecting one group operation of indoor unit to one port of multi port type Flow Selector unit.



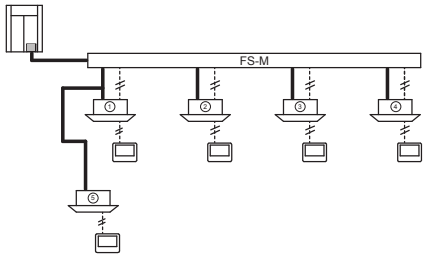
Indoor unit	①	②	③	④	⑤
[14]	1	0	0	0	2
[FE]	1	1	1	1	1
[105]	1	2	3	4	1
[106]	0	0	0	0	0
[107]	0	0	0	0	0
[108]	0	0	0	0	0

In case of connecting one group operation of indoor units to one port and multiple ports of multi port type Flow Selector unit.



Indoor unit	①	②	③	④	⑤
[14]	1	2	0	0	2
[FE]	1	1	1	1	1
[105]	1	2	3	4	1
[106]	0	0	0	0	0
[107]	0	0	0	0	0
[108]	0	0	0	0	0

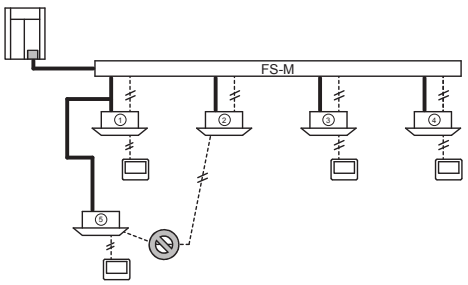
In case of connecting two indoor units to one port of multi port type Flow Selector unit.



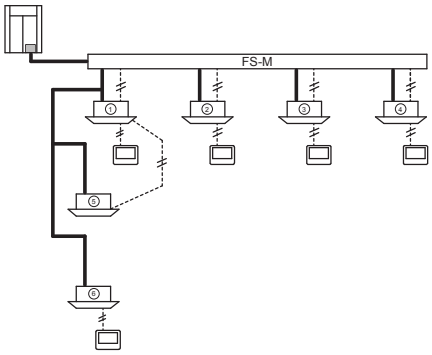
Indoor unit	①	②	③	④	⑤
[14]	1	0	0	0	0
[FE]	1	1	1	1	1
[105]	1	2	3	4	1
[106]	0	0	0	0	0
[107]	0	0	0	0	0
[108]	0	0	0	0	0

Incorrect connection.

※ Cannot operate due to check code "L13".

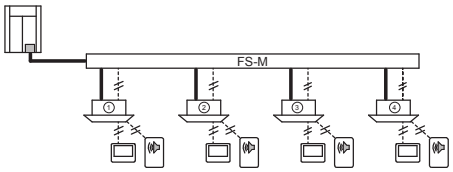


In case of connecting one group operation of indoor unit and one indoor unit to one port of multi port type Flow Selector unit.



Indoor unit	①	②	③	④	⑤	⑥
[14]	1	0	0	0	2	0
[FE]	1	1	1	1	1	1
[105]	1	2	3	4	1	1
[106]	0	0	0	0	0	0
[107]	0	0	0	0	0	0
[108]	0	0	0	0	0	0

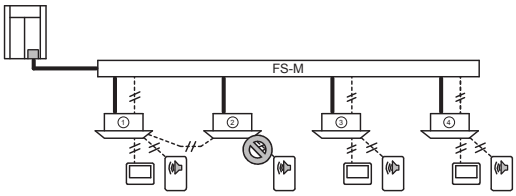
In case of connecting one indoor unit to one port of multi port type Flow Selector unit, and connecting leak detector.



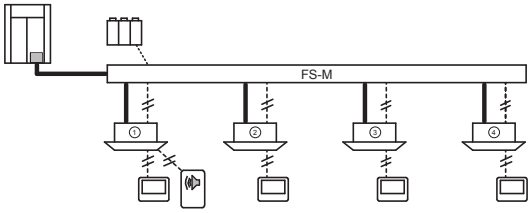
Indoor unit	①	②	③	④
[14]	0	0	0	0
[FE]	1	1	1	1
[105]	1	2	3	4
[106]	0	0	0	0
[107]	1 or 3	1 or 3	1 or 3	1 or 3
[108]	0	0	0	0

Incorrect connection.

※ It may cause unintended user behavior.

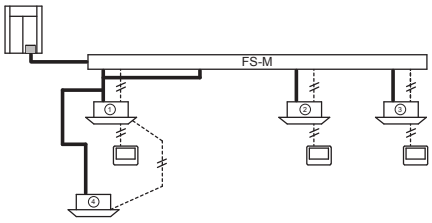


In case of connecting one indoor unit to one port of multi port type Flow Selector unit, and connecting safety measures to indoor unit and be not connecting safety measures to indoor unit.



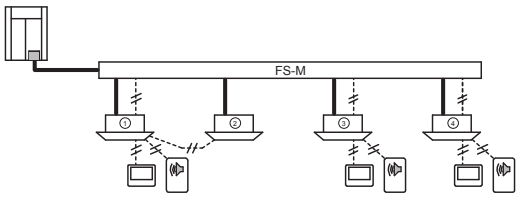
Indoor unit	①	②	③	④
[14]	0	0	0	0
[FE]	1	1	1	1
[105]	1	2	3	4
[106]	0	0	0	0
[107]	1 or 3	0	1	0
[108]	0	0	0	0

Incorrect connection.



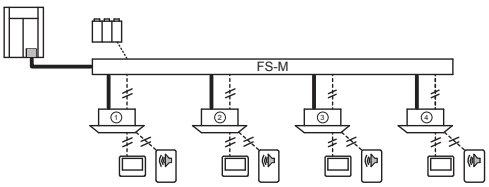
Indoor unit	①	②	③	④
[14]	1	0	0	2
[FE]	1	1	1	1
[105]	1	3	4	1
[106]	1	0	0	0
[107]	0	0	0	0
[108]	0	0	0	0

In case of connecting one group operation of indoor units to multiple port of multi port type Flow Selector unit and connecting leak detector, and connecting one indoor unit to one port of multi port type Flow Selector unit and connecting leak detector.



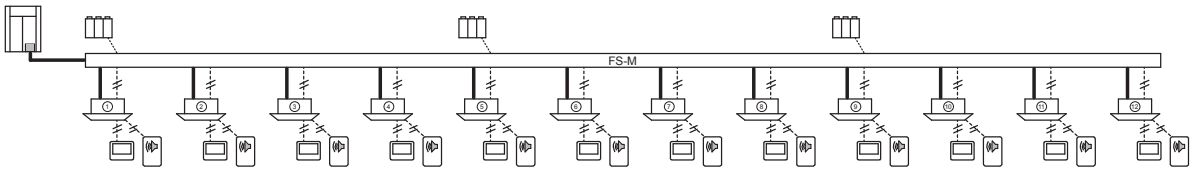
Indoor unit	①	②	③	④
[14]	1	2	0	0
[FE]	1	1	1	1
[105]	1	2	3	4
[106]	0	0	0	0
[107]	1 or 3	1 or 3	1 or 3	1 or 3
[108]	0	0	0	0

In case of connecting one indoor unit to one port of multi port type Flow Selector unit (4 port type), and connecting safety measures.



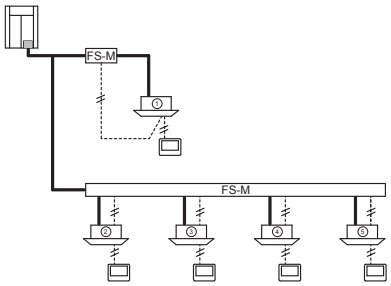
Indoor unit	①	②	③	④
[14]	0	0	0	0
[FE]	1	1	1	1
[105]	1	2	3	4
[106]	0	0	0	0
[107]	1 or 3	1 or 3	1 or 3	1 or 3
[108]	0	0	0	0

In case of connecting one indoor unit to one port of multi port type Flow Selector unit (12 port type), and connecting safety measures.



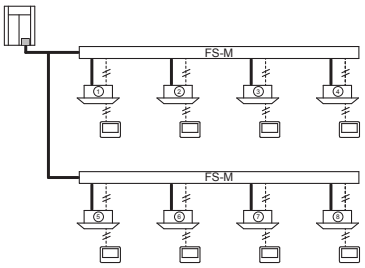
Indoor unit	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫
[14]	0	0	0	0	0	0	0	0	0	0	0	0
[FE]	1	1	1	1	1	1	1	1	1	1	1	1
[105]	1	2	3	4	5	6	7	8	9	10	11	12
[106]	0	0	0	0	0	0	0	0	0	0	0	0
[107]	1 or 3	1 or 3	1 or 3	1 or 3	1 or 3	1 or 3	1 or 3	1 or 3	1 or 3	1 or 3	1 or 3	1 or 3
[108]	0	0	0	0	0	0	0	0	0	0	0	0

In case of connecting one indoor unit to single port type Flow Selector unit, and connecting one indoor unit to one port of multiple port type Flow Selector unit.



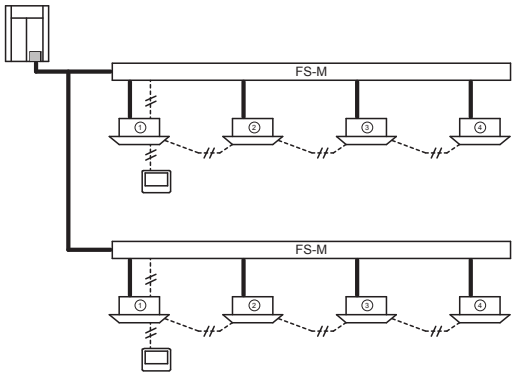
Indoor unit	①	②	③	④	⑤
[14]	0	0	0	0	0
[FE]	1	2	2	2	2
[105]	1	1	2	3	4
[106]	0	0	0	0	0
[107]	0	0	0	0	0
[108]	0	0	0	0	0

In case of connecting one indoor unit to one port of multiple port of multi port type FS unit.



Indoor unit	①	②	③	④	⑤	⑥	⑦	⑧
[14]	0	0	0	0	0	0	0	0
[FE]	1	1	1	1	2	2	2	2
[105]	1	2	3	4	1	2	3	4
[106]	0	0	0	0	0	0	0	0
[107]	0	0	0	0	0	0	0	0
[108]	0	0	0	0	0	0	0	0

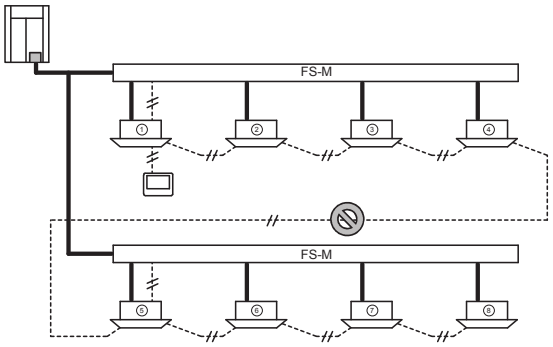
In case of connecting one group operation of indoor units to multiple port of multi port type Flow Selector unit, and there are two multi port type Flow Selector units.



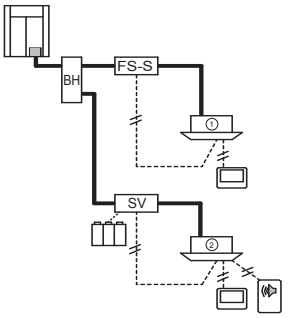
Indoor unit	①	②	③	④	⑤	⑥	⑦	⑧
[14]	1	2	2	2	1	2	2	2
[FE]	1	1	1	1	2	2	2	2
[105]	1	2	3	4	1	2	3	4
[106]	0	0	0	0	0	0	0	0
[107]	0	0	0	0	0	0	0	0
[108]	0	0	0	0	0	0	0	0

Incorrect connection.

※ It may cause unintended user behavior.



In case of connecting single port type Flow Selector unit and shut-off valve unit in the system.

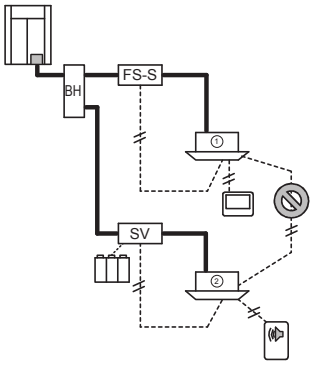


Indoor unit	①	②
[0F]	0	1
[14]	0	0
[FE]	1	2
[105]	1	1
[106]	0	0
[107]	0	1 or 2
[108]	0	0 or 1※

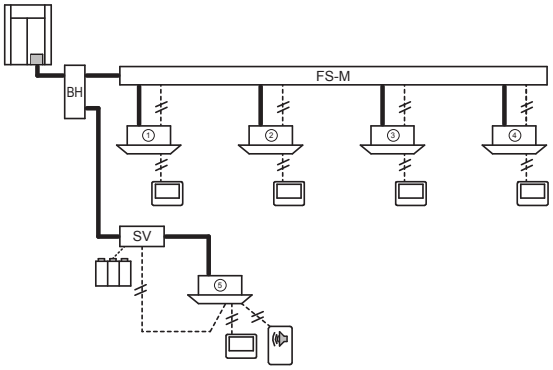
※ When you set up CODE No. “107” to 2, please set up CODE No. “108” to 1.

Incorrect connection.

※ Cannot operate due to check code "J03".



In case of connecting multiple port type Flow Selector unit and shut-off valve unit in the system.

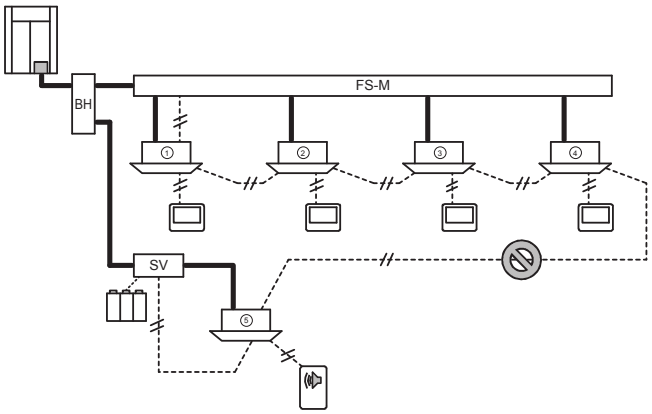


Indoor unit	①	②	③	④	⑤
[0F]	0	0	0	0	1
[14]	0	0	0	0	0
[FE]	1	1	1	1	2
[105]	1	2	3	4	1
[106]	0	0	0	0	0
[107]	0	0	0	0	1 or 2
[108]	0	0	0	0	0 or 1※

※ When you set up CODE No. “107” to 2, please set up CODE No. “108” to 1.

Incorrect connection.

※ It may cause unintended user behavior.



■ **How to setup cooling only indoor unit [0F]**

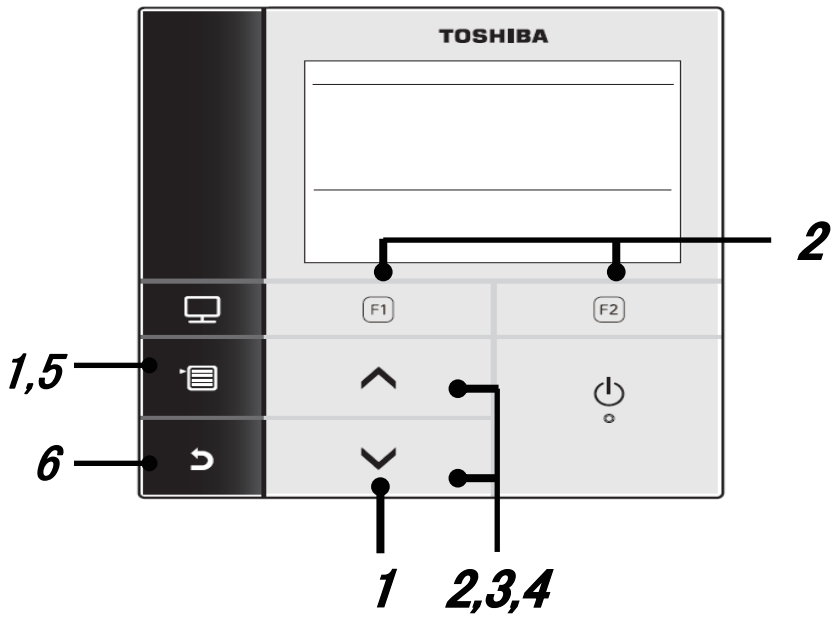
Setting up an indoor unit to "Cooling Only" unit is necessary when there is no connected flow selector unit, Perform setup using the following procedure.
Setting up the indoor unit is performed using the wired remote controller.
Even if a wired remote controller is not used, connect a wired remote controller for setup.
Change the setup with the wired remote controller before using the air conditioner with a wireless remote controller.
Change the setup during stop of the operation. (Be sure to stop operation of the air conditioner.)

1. Push and hold " MENU" button and [∨] setting button simultaneously for 4 seconds or more.
2. Select the ”DN setting" using the [∨] and [∧] button and Push the "F2(Set)" button. Select the corresponding ”Indoor unit" using the "F1(Unit)" button and push the "F2(Set)" button. (The fan and louvers of the selected indoor unit will be activated.)
3. Set the Indoor Unit Function Code (I.DN) to [0F] and the data using the [∨] and [∧] button (The fan of the selected indoor unit is turned on.)
4. Change the value indicated in the SET DATA section to that you want.

SET DATA	0000	0001
Cooling Only setup	Heat pump	Cooling Only

5. When done, press the " MENU" button.
6. Push the " CANCEL" button and complete the setting for the time being.

⚠ **CAUTION**
Cooling Only and Heat pump cannot exist in the same group.



7-5. Troubleshooting in Test Operation

If there are phenomena such as the output of a check code or the remote controller is not accepted when powered on after wiring work or during address setup operation, the following causes are considered.

7-5-1. A Check Code is Displayed on the Remote Controller

Check the code displayed on the indoor remote controller	Header unit 7-segment display	Cause	Countermeasures
E04		When outdoor power is off	Check that the header outdoor unit power is on
	L08	Address setup trouble • Only line addresses of the connected indoor units are undefined. • The outdoor line address and the line addresses of all the indoor units do not match. • The indoor addresses are duplicated. (Units except those displaying E04 are duplicated.) • A header unit is not set up in group control (except groups displaying E04).	Set up the address again.
	E08 ⇔ -XXX Alternate blinking	Duplication of indoor addresses (address number in the sub code of the check code are duplicated).	Set up the address again.
	E07	When the terminator resistor (SW100 bit2) in the communication line between indoor and outdoor units (Uv) on the outdoor unit has not been turned on or two or more terminator resistors have been turned on (After address setup, when terminator resistor setup is changed after powering-on)  SW100	Check SW100 bit 1 or bit 2 of the header unit. No connection between multiple refrigerant lines: Turn off SW100 bit 1 and turn on bit 2. Connection between multiple refrigerant lines: Turn on SW100 bit 1 of only the connected header unit for one line. Turn on SW100 bit2 of all the header units. *Factory default : SW100 bit 1 is off, bit 2 is off.
		Transmission circuit trouble at the interface side (P.C. board failure)	Replace the interface PC board.
	E06	After address setup, communication from all the indoor units is interrupted under the condition that a normal operation can be performed.	Check and correct disconnection of the indoor/outdoor communication line (the communication line between the header unit and the leading indoor unit). Check for the influence of communication noise. In TU2C-LINK communication system, if the termination resistance is not set in any of the indoor units.
E16	E16.XX	Exceeded the number or capacity of connected indoor units	Adjust the number or capacity of connected indoor units.
E23	E23	• The setting of terminator resistor is incorrect. • Communication with outdoor unit from another refrigerant line cannot be performed when power is turned on (Uh(U3/U4) communication line).	• Check the connection of Uh(U3/U4) communication line. • Check whether there is defect of not on outdoor unit interface P.C.board. • Check the setting of terminator resistor.
E25	E25	Duplication of outdoor addresses (only when an outdoor address was manually set up)	Do not use manual setup for outdoor addresses.
E26	E26 ⇔ -XX Alternate blinking	Number of connected outdoor units has decreased. • When installing an outdoor backup • The power of a follower unit is not turned on.	Correction of the cause of trouble occurrence • If it occurs when installing a backup, clear the trouble after setup finishes. • If the power of a follower unit is not turned on, turn on the power.
L02	L02	• When an indoor unit that does not support A2L refrigerant is connected • When an FS unit or remote controller that does not support TU2C-LINK in connected.	• Replace indoor unit. • Replace FS unit or remote controller.

* “L05”: Displayed on the indoor unit set up with priority
  “L06”: Displayed on the indoor units except the one set up with priority

Check the code displayed on the indoor remote controller	Header unit 7-segment display	Cause	Countermeasures
L04	L04	Duplication of outdoor line addresses • Line address setup trouble (occurred after connection between U1/U2 and U3/U4 connectors)	Modify the line address setup of the header unit between lines. (Set up SW13 and SW14 on the interface PC board.)
L05(*)	L06	Duplication of indoor units with priority	Set up priority only for one indoor unit.
L06(*)	None	There are two or more indoor units set up with priority.	Among indoor units indicating “L05,” set one unit with priority.
L08	L08	Address setup trouble • Only indoor addresses of all the connected indoor units are undefined.	Set up the addresses again. Modify the setup.
L11	L11	• When outdoor unit is set to "HR", FS unit is not connected to indoor unit and it is not set to "cooling only" • When outdoor unit is set to "HP", FS unit is connected to indoor unit. • Communication connection trouble between Flow Selector unit and indoor unit. • FS unit P.C.board trouble	• Connect FS unit • Correct the indoor unit setting to "cooling only setting. • Correct communication line. • Replace FS unit P.C.board or indoor unit P.C.board or outdoor unit I/F P.C.board. • Correct DipSW104 setting.
L13	L13	• "Safety measures" setting for indoor units connected to same FS unit SV unit are different. (When "Individual shut-off" and other settings exclude "No safety measures" are mixed.) • No indoor unit is connected to No.1 port of FS unit Multi-port type • Set a number that is one larger than the "FS unit" and SV unit port address of the indoor unit for which "Combining branches of FS unit" is set. Example; If the "port address" of the indoor unit for which "FS unit branch combination" is set to 3,4 must not be set. • Multiple remote controller groups are set to one port of the FS unit, a different port address is set for one of the groups. • Same address is set for different FS units or SV units.	• Correct the connection of the indoor unit. • Correct port address settings. • Correct the connection of the indoor unit. • Correct port "combining branches" settings. • Correct port address settings. • Correct safety measures settings. • Correct port address settings. • Correct the address settings of the FS unit. • Correct communication line. • Replace the indoor unit P.C.board.
L14	L14	• "Safety measures" setting is set other than "no safety measures" and Le Detector is not connected. (Detected when power is turned on.) • Safety measures "setting is set to "Pump-down operation" or "Individual shut-off operation" and FS unit or SV unit is not connected. • "Safety measures" setting is set to "Individual shut-off operation" a connected to FS unit Multi-port type.	• Correct safety measures settings. • Connect leak detector. • Correct safety measures settings. • Connect the FS unit or shut-off valve unit. • Correct safety measures settings. • Correct connection of connector. • Replace indoor unit P.C.board.

7-5-2. No Remote Controller Response with Check Code

(Operation from the indoor remote controller is not accepted, and a check code is displayed on the 7-segment display of the interface PC board of the header unit)

Indoor remote controller status	Header unit 7-segment display	Cause	Countermeasures
No response	L08	Line addresses and indoor addresses of all the connected indoor units are not set.	Set up addresses.
		There is no header unit of group control.	Set up a group address.
	E19 ⇔ -00 Alternate blinking	Indoor unit power is not turned on.	Turn on the power again. (In the order: indoor → outdoor)
		Indoor/outdoor communication line is not correctly connected to the U1/U2 terminal of the header unit (Fig. 1). (Indoor/ outdoor cannot communicate before address setup.)	Correct wiring
		When the terminator resistor (SW100 bit2) in the communication line between indoor and outdoor units (Uv) on the outdoor unit has not been turned on or two or more terminator resistors have been turned on (After address setup, when terminator resistor setup is changed after powering-on)  SW100	Check SW100 bit 1 or bit 2 of the header unit. No connection between multiple refrigerant lines: Turn off SW100 bit 1 and turn on bit 2. Connection between multiple refrigerant lines: Turn on SW100 bit 1 of only the connected header unit for one line. Turn on SW100 bit2 of all the header units. * Factory default : SW100 bit 1 is off, bit 2 is off.
	E19 ⇔ -02 Alternate blinking	When connecting an indoor/outdoor communication line between outdoor units under the condition of a connected communication line between outdoor units (Fig. 2).	Correct wiring
		SW08 setup trouble	Turn all SW08 switches to “off.”
	E20 ⇔ -01 Alternate blinking	Address setup is performed with connecting an indoor/ outdoor communication line between outdoor units (Fig. 3).	Correct wiring
		Address setup is performed under the condition of connecting multiple refrigerant lines (Fig. 3).	Correct wiring

7-5-3. No Remote Controller Response without Check Code

(There is no display of a check code on the 7-segment display on the interface PC board of the header unit, although there is indoor unit that is not accepting operation from the indoor remote controller)

Indoor remote controller status	Header unit 7-segment display	Cause	Countermeasures
No response	None	The communication line is not connected between indoor and outdoor (the unit that does not respond to the indoor remote controller).	Improve the wiring.
		Line address and indoor address are not set (the unit that does not respond to the indoor remote controller).	Set up the address.
		The power of the header unit of the group is not turned on in indoor group control (the unit that does not respond to the indoor remote controller).	Turn on the power.
		Group address is set to the follower unit for individual control (the unit that does not respond to the indoor remote controller).	Set the group address to “0” in the case of individual control.
No display on the indoor remote controller (no line is output.)	None	The power is not turned on (the unit that is not displayed on the indoor remote controller).	Turn on the power.
		The indoor remote controller is not connected with a wire (the unit that is not displayed on the indoor remote controller).	Improve the wiring.
		Miswiring of the indoor remote controller (the unit that is not displayed on the indoor remote controller)	Improve the wiring.
		Indoor remote controller communication circuit trouble (the unit that is not displayed on the indoor remote controller) If 220 V is incorrectly applied to the indoor remote controller terminal, the remote controller communication circuit fails.	Remove the quick connect terminal connected to indoor remote controller terminals A/B, and check the voltage. If voltage is not applied (normally 15 to 18 V), replace the PC board.

7-5-4. Connected Indoor/Outdoor Unit Quantity Check

(In checking the number of connected outdoor units and connected indoor units after address setup, a lower number of connected units is displayed (There are outdoor/ indoor units that do not operate in a test operation))

Status	Cause	Counter measures
The number of connected indoor units is few.	Miss wiring of communication lines between indoor units or an unconnected wire (Fig. 5). (Address setup operation finished without recognizing a miss wired indoor unit.)	After modification of wiring, set up the addresses again and check the number of connected indoor units.
The number of indoor units connected to a group is few in group operation from an indoor remote controller.	The indoor remote controller is not connected with wire. Miswiring of the indoor remote controller	Using the main indoor remote controller connected to a group, start a test operation, specify the unit that is not operating (the unit not connected to the group), and then check the wiring.
	Indoor remote controller communication circuit trouble If 220 V is incorrectly applied to the remote controller terminal, the remote controller communication circuit fails.	Using the main indoor remote controller connected to a group, start a test operation and then specify the unit that is not operating (the unit not connected to the group). Remove the quick connect terminal connected to remote controller terminals A/B, and check the voltage. If voltage is not applied (normally 15 to18 V), replace the PC board.

Miswiring example

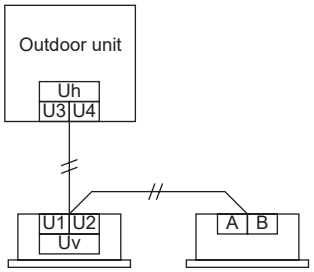
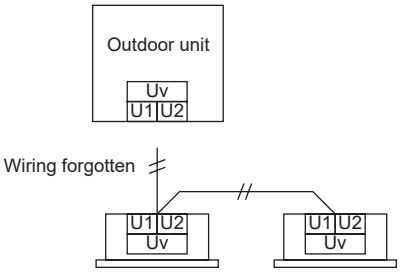
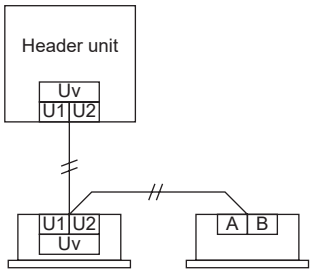
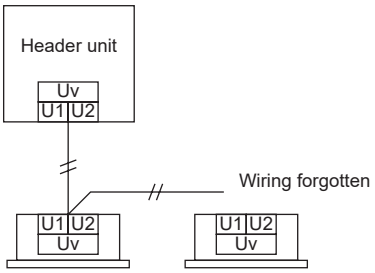
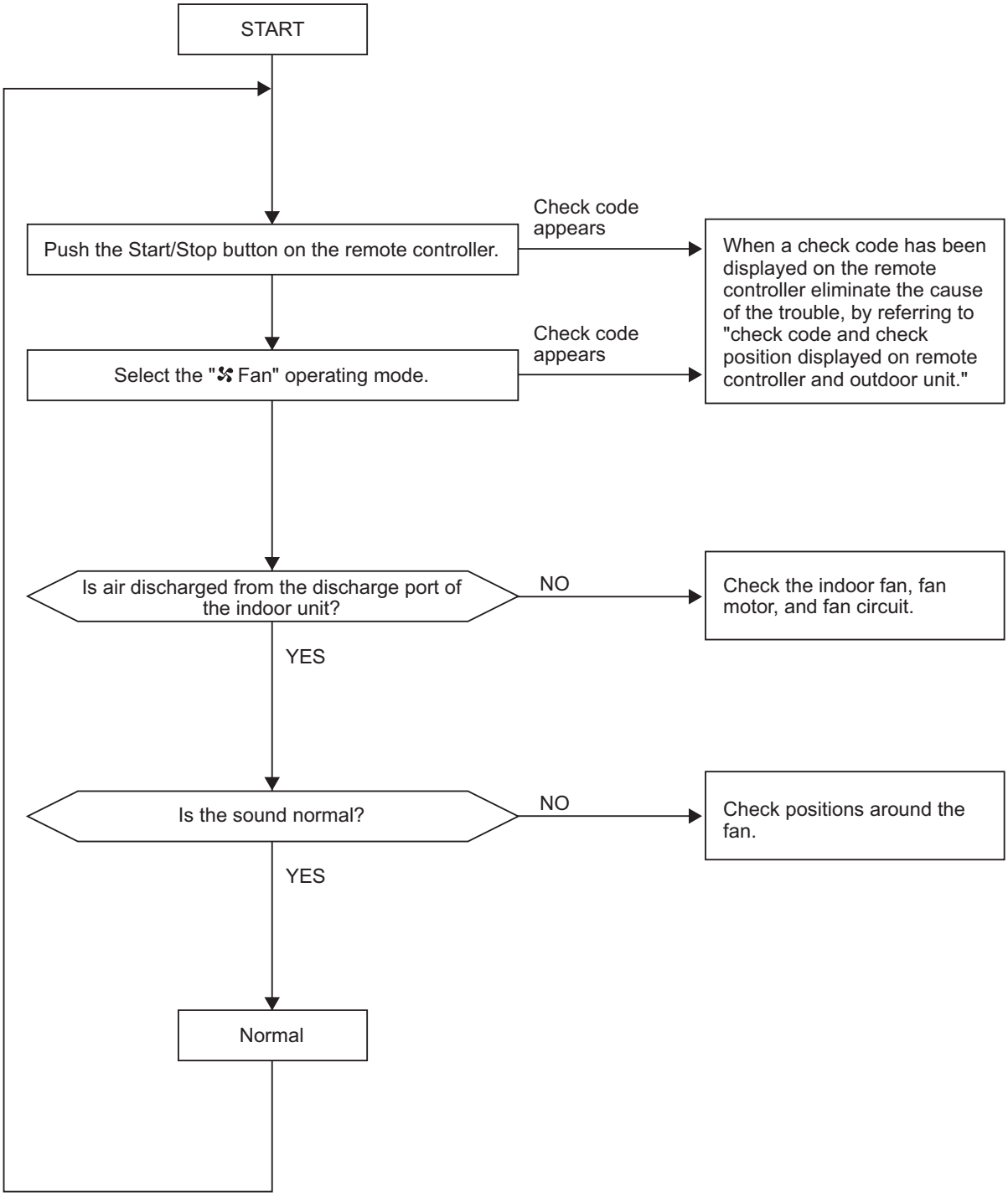
Figure	Remote controller status	Header unit 7-segment display	Miswiring example
Fig 1	E04	L08	 • Indoor/outdoor communication line is miss wired to Uh (U3/U4).  • Indoor/outdoor communication line is not connected.

Figure	Status	Miswiring example
Fig 2	The number of connected indoor units is few.	 • Indoor/outdoor communication line is miss wired to remote controller terminal (A/B).  • There is an indoor unit not connected to the indoor/outdoor communication line.

7-6. Test Operation (test run) Check

7-6-1. Fan Check



Check every indoor unit in turn.

7-6-2. Inspection mode (safety measures)

◆ When connecting an FS unit or a shut-off valve unit, perform the following detailed inspection mode.
This mode verifies that safety measures are properly connected.
The detailed inspection mode is performed on the interface board of the outdoor unit.

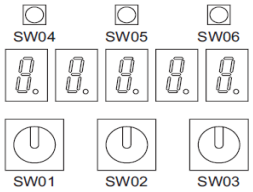
Detailed inspection mode is completed in about 40 minutes in general and about 90 minutes at maximum.

<Detailed inspection mode start operation>

1. Set the rotary switch on the interface board of the outdoor unit to SW01=[2], SW02=[15], sw03=[16].

7-segment display	
[A]	[B]
[ ]	[ ]

2. Press SW04 for at least 2 seconds.



7-segment display	
[A]	[B]
[FS]	[CH]

If the detailed inspection mode successfully completes, the following will be displayed.

7-segment display	
[A]	[B]
[FS]	[——]

If there is an incorrect electrical wiring, incorrect piping connection, incorrect indication, etc., the following will be displayed.
If there are multiple indoor units with errors, press SW06 to change the address display of the indoor unit.
（If there is only one indoor unit with an error, the display remains the same.）

7-segment display	
[A]	[B]
[FS]	[Err] ⇕ The indication changes every 1.0 second. [ ] ↓ Address of the error indoor unit

If [Err] is indicated on 7-segment display, execute a cooling/heating test run for each indoor unit and check cool/hot air is blowing. Also, check the piping connection, wiring connections, and settings again.
If there is no problem after checking again, the system is normal.
When you modify piping connections, wiring connections, or settings, execute detailed inspection mode again.
Please contact a qualified service person if there is any trouble during test run.
* [Err] on the 7-segment display disappears when the system power is reset.

* [Err] may be indicated even if there is no problem.

- When the temperature difference is large between in each indoor unit.
- When the FS unit or Shut-off Valve is connected to the main pipe from the outdoor unit.
- When RBM-SV6701HUPE is connected.

* A sound may be heard from the piping, Flow Selector unit, or Shut-off Valve unit during the test run, but this is not a malfunction.

<Detailed inspection mode end operation>

1. Return the rotary switch on the interface board of the outdoor unit to SW01=[1], SW02=[1], and SW03=[1].

7-segment display	
[A]	[B]
[U1]	[ ]

◆ When using a refrigerant leak detector, perform the following simple inspection mode.
The simple inspection mode is performed with a refrigerant leakage detector.
The simple inspection mode should be performed for each refrigerant leak detector.
If you run a simple inspection mode while normal operation, this operation stops.
The simple inspection mode can be performed during the detailed inspection mode. (Detailed inspection mode operation does not stop.) Simple inspection mode ends after 60 minutes from the start.

<Simple inspection mode start operation>

1. Press the reset switch on the refrigerant leak detector for at least 5 seconds. (Please use a precision screwdriver, etc.)

7-segment display	
[A]	[B]
[Sd]	[CH]

It is not displayed during detailed inspection mode.

The refrigerant leak detector works.
（For the operation of the refrigerant leakage detector, refer to the operating instructions of the refrigerant leak detector.）

If the simple inspection mode operates normally, the following is displayed. (It is not displayed during detailed inspection mode.)

7-segment display	
[A]	[B]
[Sd]	[——]

If there is a disconnection, etc., the following display will be displayed.

7-segment display	
[A]	[B]
[Sd]	[Err]

If you see an error, check the wiring connection again.

<Simple inspection mode end operation>

1. Press the alarm stop switch on the refrigerant leak detector for at least 5 seconds.

7-segment display	
[A]	[B]
[U1]	[ ]

7-6-3. Cooling/Heating Test Operation Check

The cooling/heating test operation check can be performed on both the indoor remote controller and the outdoor header unit interface PC board.

(1) Test operation start/stop operation

Test operation from the indoor remote controller

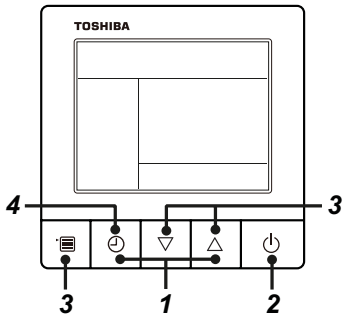
- Wired remote controller: Refer to the items below in “Test operation” of the wired remote controller.
- Wireless remote controller: Refer to the items below in “Test operation” of the wireless remote controller.

▼ Wired remote controller

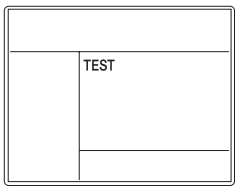
<RBC-ASCU11*>

Be sure to stop the air conditioner before making settings.

(Change the setup while the air conditioner is not working.)



1 **Push and hold OFF timer button and [△] setting button simultaneously for 10 seconds or more. [TEST] is displayed on the display part and the test run is permitted.**



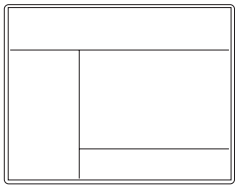
2 **Push ON/OFF button.**

3 **Push menu button to select the operation mode. Select [Cool] or [Heat] with [▽] [△] setting button.**

- Do not run the air conditioner in a mode other than [Cool] or [Heat].
- The temperature setting function does not work during test run.
- The check code is displayed as usual.

4 **After the test run, push OFF timer button to stop a test run.**

([TEST] disappears on the display and the air conditioner enters the normal stop mode.)



▼ **Wireless remote controller**

1 **Turn on the power of the air conditioner. When power is turned on for the first time after installation, it takes approx. 5 minutes until the remote controller becomes available. In the case of subsequent power on, it takes approx. 1 minute until the remote controller becomes available. Execute a test run after the predetermined time has passed.**

2 **Push "ON/OFF" button on the remote controller, select [☼ Cool] or [☼ Heat] with "MODE" button, and then select [▬▬▬ HIGH] with "FAN" button.**

3

Cooling test run	Heating test run
Set the temperature to 17°C with the temp. setup buttons.	Set the temperature to 30°C with the temp. setup buttons.

4

Cooling test run	Heating test run
After confirming a signal receiving sound "beep" immediately set the temperature to 18°C with the temp. setup buttons.	After confirming a signal receiving sound "beep" immediately set the temperature to 29°C with the temp. setup buttons.

5

Cooling test run	Heating test run
After confirming a signal receiving sound "beep" immediately set the temperature to 17°C with the temp. setup buttons.	After confirming a signal receiving sound "beep" immediately set the temperature to 30°C with the temp. setup buttons.

6 **Repeat procedures *4* → *5* → *4* → *5*. Indicators "Operation" (green), "Timer" (green), and "Ready" (orange) in the wireless receiver section flash in approx. 10 seconds, and the air conditioner starts operation. If any of these indicators does not flash, repeat procedures 2 to 5.**

7 **Upon completion of the test run, push "ON/OFF" button to stop operation.**

<Overview of test run operations using the wireless remote controller>

Cooling test run:

ON/OFF → 17°C → 18°C → 17°C → 18°C → 17°C → 18°C → 17°C → (test run) → ON/OFF

Heating test run:

ON/OFF → 30°C → 29°C → 30°C → 29°C → 30°C → 29°C → 30°C → (test run) → ON/OFF

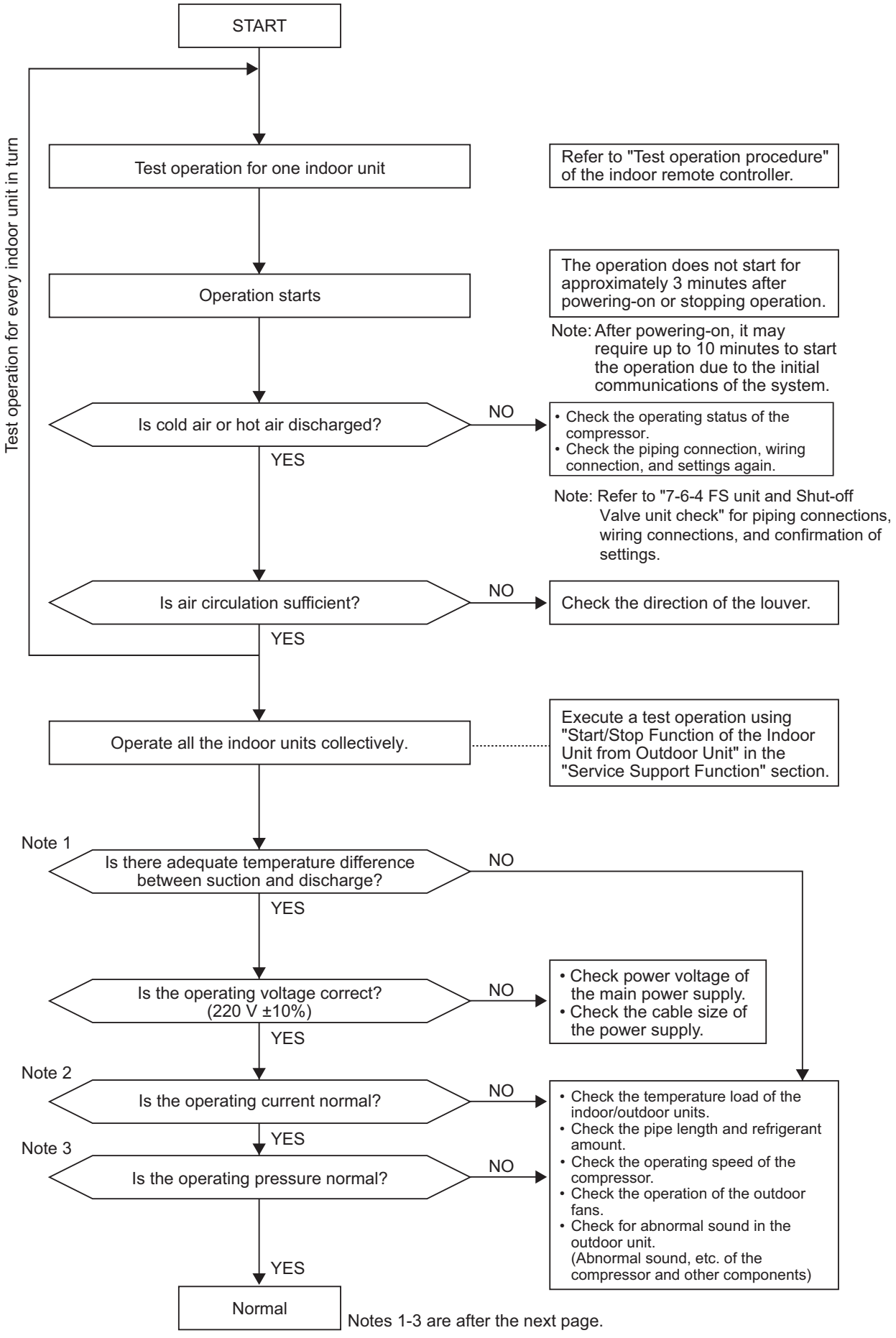
Test operation from the outdoor unit

- Refer to "7-7-2. Function to Start/Stop (ON/OFF) Indoor Unit from Outdoor Unit" in "7-7. Service Support Function."

⚠ CAUTION

- The test run is a forced run that ignores the set temperature. Be sure to stop the test run after work, paying attention to the room temperature.
- After 60 minutes, the test run will be completed to protect the equipment, and the normal operation will be started according to the set temperature.

(2) Test operation



Notes 1-3 are after the next page.

Note 1: Criteria for the difference between suction and discharge temperatures

(1) Cooling operation

After operating for a minimum of 30 minutes in “COOL” mode, if the T dry bulb temperature difference between suction and discharge air of the indoor unit is 8°C or more, it is normal.

(2) Heating operation

After operating for a minimum of 30 minutes in “HEAT” mode, if the T dry bulb temperature difference between suction and discharge air of the indoor unit is 15°C or more, it is normal.

* If demand from the indoor unit on the outdoor unit is low because the difference between the temperature set by the remote controller and the temperature of the room is small, then the T temperature difference is small.
* Consider that T temperature difference may diminish in cases of a system in which the connected indoor unit capacity exceeds the outdoor unit capacity, the pipe length is long, or a large difference exists among outdoor units.

Note 2: Criteria for operating power current

The table below shows the maximum current for each outdoor unit. Under standard conditions, operating current is about 80% of the value shown in the table below.

Model	MMY-SUG	**0801***	**1001***	**1201***	**1401***	**1601***
Current value	(A)	15.4	20.5	24.5	27.5	30.5
Model	MMY-SUG	**1801***	**2001***	**2201***	**2401***	
Current value	(A)	34	36	51	54	

Note 3: Criteria for cycle status

(1) These data are based on operating a 4-way Air Discharge Cassette type air conditioner of 100% connection with standard piping length.

Data may vary depending on temperature conditions, installed pipe length, and room shape combinations, or indoor unit connection capacity.

For pressure criteria in different temperature conditions, refer to (2).

Outdoor Unit MMY-SUG	Operating Mode	Pressure (MPa)		Pipe Surface Temperature (ºC)					Compressor Rotation (rps)		Indoor Fan	Air Temperature (DB/WB)(ºC)	
				Discharge	Suction	Indoor Heat Exchanger	Outdoor Heat Exchanger	Liquid Temperature	Compressor 1	Compressor 2		Outdoor	Indoor
		Pd	Ps	TD1	TS1	TC2	TE1	TL3	Cmp. 1	Cmp. 2		TO	TA
0801*	Cooling	3.0	1.0	79	21	15	39	26	50	—	High	35	27
	Heating	2.4	0.7	67	2	25	1	21	57	—	High	7	20
1001*	Cooling	3.1	1.0	82	21	15	40	26	56	—	High	35	27
	Heating	2.8	0.7	79	2	23	0	17	63	—	High	7	20
1201*	Cooling	3.4	1.1	86	21	15	40	29	65	—	High	35	27
	Heating	2.5	0.7	75	1	25	0	16	75	—	High	7	20
1401*	Cooling	3.7	1.1	91	20	16	41	33	77	—	High	35	28
	Heating	2.4	0.7	73	1	26	-1	22	83	—	High	7	20
1601*	Cooling	3.2	1.0	85	19	15	43	28	65	—	High	35	27
	Heating	2.5	0.6	71	-1	27	1	17	68	—	High	7	20
1801*	Cooling	3.4	1.0	90	19	14	42	28	70	—	High	35	27
	Heating	2.5	0.6	72	-2	27	2	22	77	—	High	7	20
2001*	Cooling	3.3	0.9	92	20	14	43	31	77	—	High	35	27
	Heating	2.5	0.6	79	0	25	0	1	82	—	High	7	20
2201*	Cooling	3.5	1.0	94	27	15	42	29	71	70	High	35	27
	Heating	2.7	0.6	82	-1	25	0	-4	79	77	High	7	20
2401*	Cooling	3.7	1.0	98	21	15	43	30	78	77	High	35	27
	Heating	2.6	0.6	81	-1	24	0	20	79	77	High	7	20

* This compressor is driven with a 6-pole motor. The value of the compressor frequency (rps) measured with a clamp meter at the compressor lead line is three times the rotation count (rps) of the compressor.
* Each compressor may have a different frequency as a measure against resonance.
* The temperature of the indoor heat exchanger (TC) indicates TCJ sensor temperature when cooling, and TC2 sensor temperature when heating, respectively.

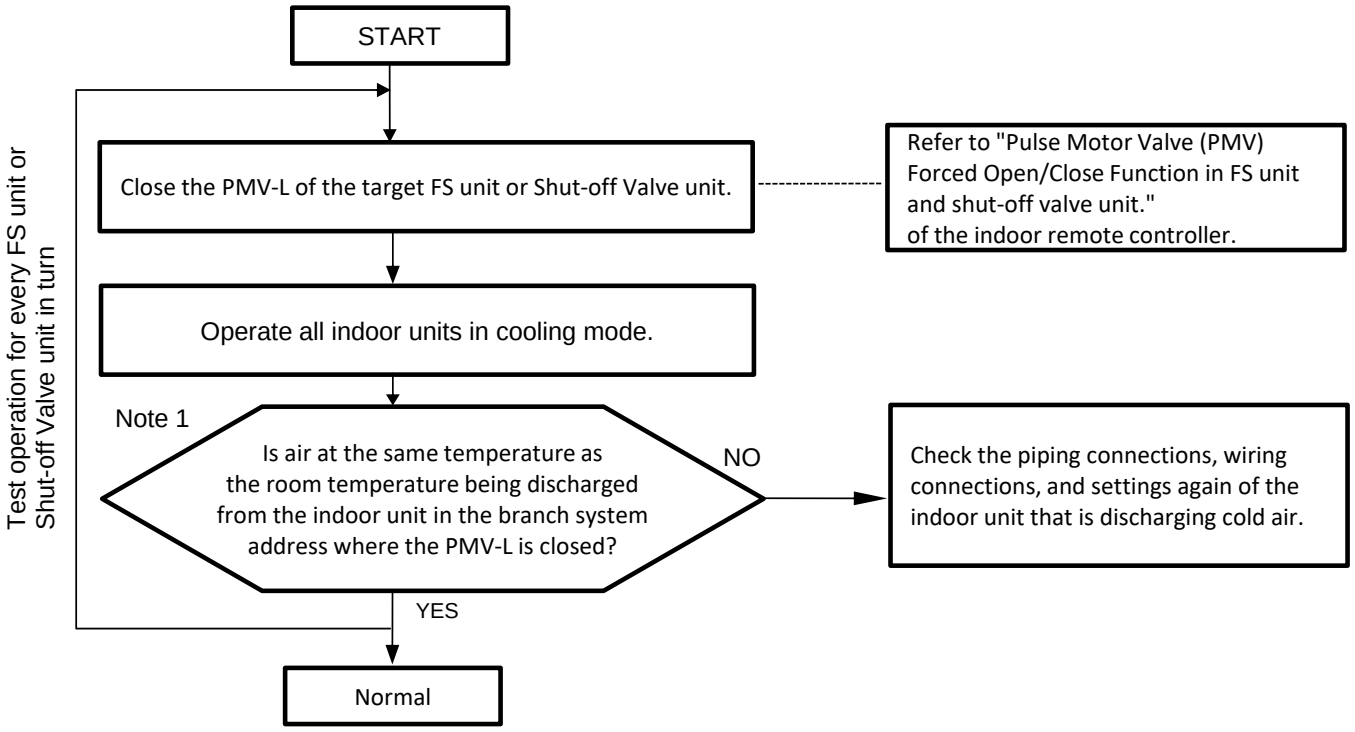
(2) Criteria for operating pressure

Operating Mode	Pressure (MPa)		Temperature (ºC)	
	Pd	PS	Indoor	Outdoor
Cooling	2.0 ~ 3.3	0.5 ~ 0.9	18 ~ 32	25 ~ 35
Heating	2.5 ~ 3.3	0.5 ~ 0.7	15 ~ 32	5 ~ 35

* Criteria after 14 minutes or more has passed since operating started

7-6-4. FS unit and Shut-off Valve unit piping connection,wiring connection check

※Do not operate when an FS unit or Shut-off Valve is connected to the main pipe from the outdoor unit.



Note 1 : Cold air may continue being discharged for a while if the piping between the FS unit or Shut-off Valve and the indoor unit is long due to the refrigerant in the pipe. Check again after heating operation.

7-6-5.Pump-down test operation

◆Perform pump-down test operation by the following operation.

NOTE) When performing this operation, be sure to perform "7-6-2. Inspection mode (safety measures)" and "7-6-3. Cooling / Heating test operation check" in advance.

<Pump-down test start operation>

1. Set the rotary switches on the interface P.C. board of the outdoor unit to SW01=[2], SW02=[15], SW03=[15].

7-segment display	
[A]	[B]
[Pt.]	[ ]

2. Push SW04 for at least 5 seconds.
   Check that [CH] is displayed on 7-segment display [B] and [Test run] is displayed on the remote controller.

7-segment display	
[A]	[B]
[Pt.]	[CH]

If pump-down test operation successfully completes, the following will be displayed.
([Test run] on the remote controller disappears ,and " ⏻' is displayed when push ON/OFF button.)

7-segment display	
[A]	[B]
[Pt.]	[J30]

If a trouble occurs during pump down operation, the following will be displayed.

7-segment display	
[A]	[B]
[Pt.]	[***]

***: Check code（Refer to "8-2. Troubleshooting method"）

<Pump-down test end operation>

1. Reset system power.
2. Set the rotary to SW01=[2], SW02=[1], SW03=[9].

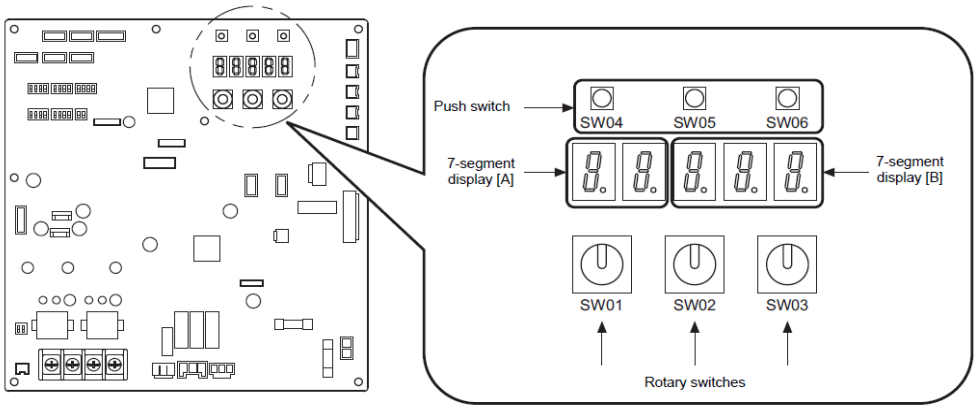
7-segment display	
[A]	[B]
[o.U.]	[L o c] (While system is locked.) [ ] (Others)

3. Push SW05 for at least 5 seconds.

7-segment display	
[A]	[B]
[o.U.]	[CL] (for 5 seconds)

4. Reset system power again.
1. Return the rotary switches to SW01=[1], SW02=[1], SW03=[1].

Interface P.C. board



7-7. Service Support Function

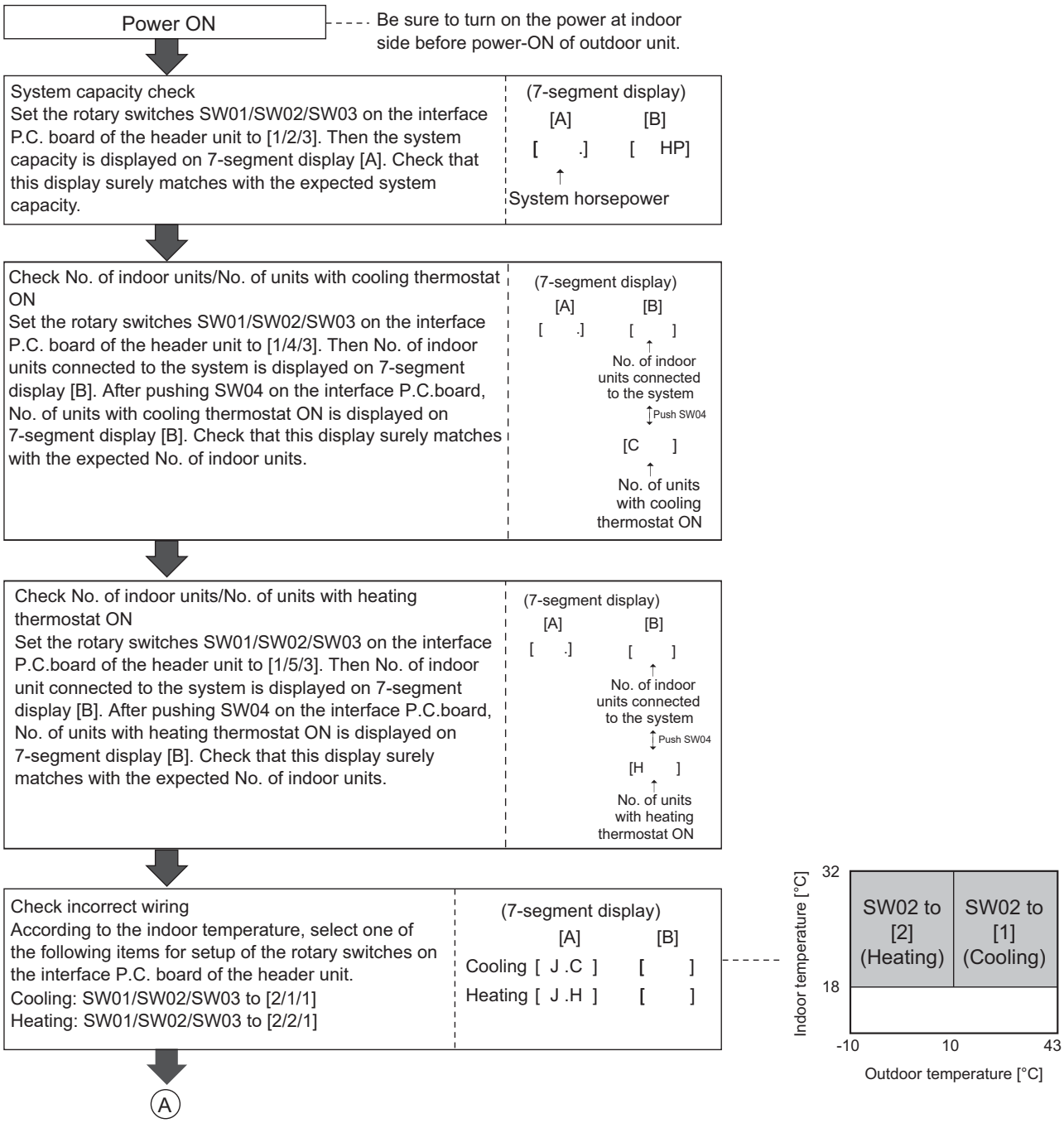
7-7-1. Check Function for Connecting of Refrigerant and Control Lines

This function is provided to check misconnection of the refrigerant pipes and the control transmission line (Wiring over lines) between indoor unit and outdoor unit by using the switch on the interface P.C. board of the header unit.
However, be sure to check the following items prior to executing this check function.

1 This check function does not work when a group operation by remote controller is performed and it is used over outdoor units.

2 When using this check system, be sure to check for each 1 line in the unit of outdoor unit. If checking the multiple lines at the same time, misjudgment may be caused.

(Check procedure)



On rotations of outdoor fans

Outdoor fans may rotate slowly to control pressure when cooling with low outer air temperature or heating with excessive load. For control content, also refer to items in Section 5, “Control Outline: Outdoor Unit, Outdoor Fan Control.”

Ⓐ

Operation start Press the push-switch SW04 on the interface P.C. board of the header unit for 2 seconds or more. The operation starts. Check that 7-segment display [B] shows [CC] for cooling and [HH] for heating.	(7-segment display) [A] [B] Cooling [C] [CC] Heating [H] [HH]

Operation

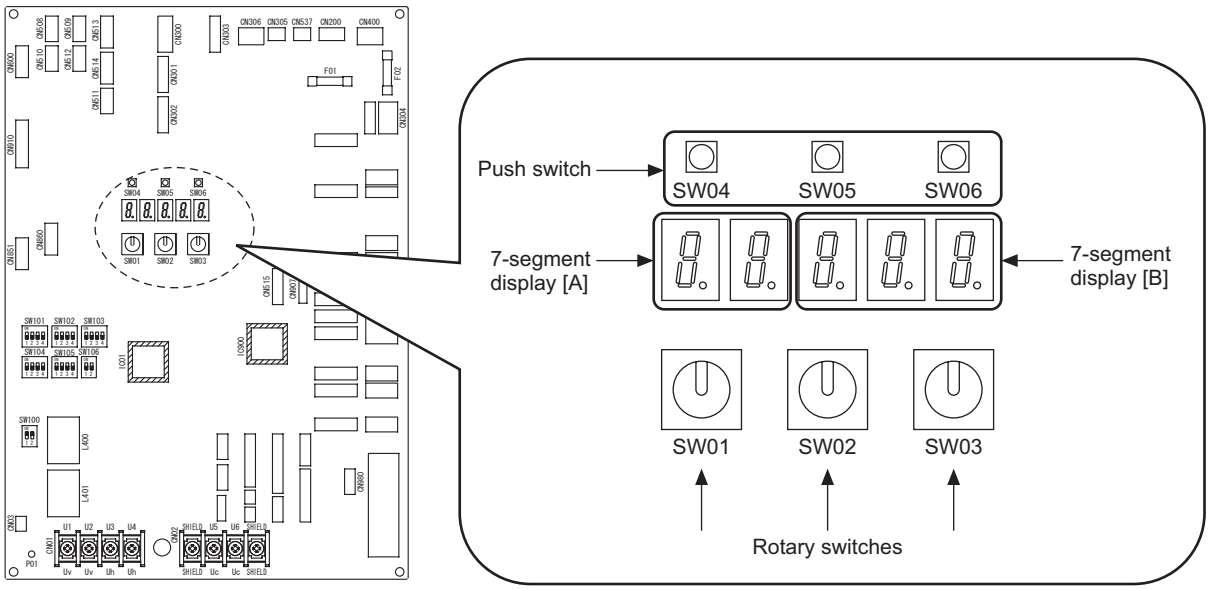
Confirmation of check results (1) Check that No. of misconnected indoor units is displayed on 7-segment display [B] after 15 minutes. (If there is no misconnection, [00P] is displayed.)	(7-segment display) [A] [B] [ ] [# # P] ↑ ↑ C or H No. of misconnected indoor units

This check operation requires 15 minutes even if there is no misconnection or there is any misconnection.

Confirmation of check results (2) Press the push-switch SW05 on the interface P.C. board of the header unit for 2 seconds or more. The indoor address in which trouble is being detected is displayed on 7-segment display [B]. If there are multiple indoor address in which trouble is being detected, they are successively exchanged and displayed. (When SW05 is turned on again, the display returns to display of No. of units.)	(7-segment display) [A] [B] [ ] [# #] ↑ ↑ C or H Address display of misconnected indoor unit

After check, return the rotary switches SW01/SW02/SW03 on the interface P.C. board of the header unit to [1/1/1].	(7-segment display) [A] [B] [U1] [ ]

Interface P.C. board



7-7-2. Function to Start/Stop (ON/OFF) Indoor Unit from Outdoor Unit

The following functions of the indoor unit can start or stop by the switches on the interface P.C. board of the header unit.

No	Function	Outline	Setup/Release	7-segment display
1	Cooling test operation	Changes the mode of all the connected indoor units collectively to cooling test operation. Note) Control operation same as usual test operation from remote control is performed.	[Setup] Set SW01/SW02/SW03 to [2/5/1], and press SW04 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section A [C.] Section B [– C]
2	Heating test operation	Changes the mode of all the connected indoor units collectively to heating test operation. Note) Control operation same as usual test operation from remote control is performed.	[Setup] Set SW01/SW02/SW03 to [2/6/1], and press SW04 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section A [H.] Section B [– H]
3	Fan test operation	Changes operation mode of all the connected indoor units collectively to test operation mode. Note) Control operation same as usual test operation from remote control is performed.	[Setup] Set SW01/SW02/SW03 to [2/9/1], and push SW04 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section A [F.] Section B [– F]
4	Batch start	Starts all the connected indoor units collectively. Note) The contents follow to the setup of remote controller.	[Setup] Set SW01/SW02/SW03 to [2/7/1], and press SW04 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1].	Section A [C.H] Section B [11] [00] is displayed on Section B for 5 seconds.
	Batch stop	Stops all the connected indoor units collectively.	[Setup] Set SW01/SW02/SW03 to [2/7/1], and press SW05 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1].	Section A [C.H] Section B [00] [00] is displayed on Section B for 5 seconds.
5	Individual start	Starts the specified indoor unit. Notes) • The contents follow to the setup of remote controller. • The other indoor units keep the status as they are.	[Setup] Set SW01 to [16], set SW02 and SW03 to address No. (1 to 128) to be started, and press SW04 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section C [ ] Section D [ ] Section C: Displays the corresponding indoor address. Section D: Displays [11] for 5 seconds from operation-ON.
	Individual stop	Stops the specified indoor unit. Note) The other indoor units keep the status as they are.	[Setup] Set SW01 to [16], set SW02 and SW03 to address No. (1 to 128) to be stopped, and press SW05 for 2 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section C [ ] Section D [ ] Section C: Displays the corresponding indoor address. Section D: Displays [00] for 5 seconds from operation-OFF.
	Individual test operation	Operates the specified indoor unit. Note) The other indoor units keep the status as they are.	[Setup] Set SW01 to [16], set SW02 and SW03 to address No. to be operated, and press SW04 for 10 seconds or more. [Release] Return SW01/SW02/SW03 to [1/1/1].	Section C [ ] Section D [ ] Section C: Displays the corresponding indoor address. Section D: Displays [FF] for 5 seconds from test operation-ON.

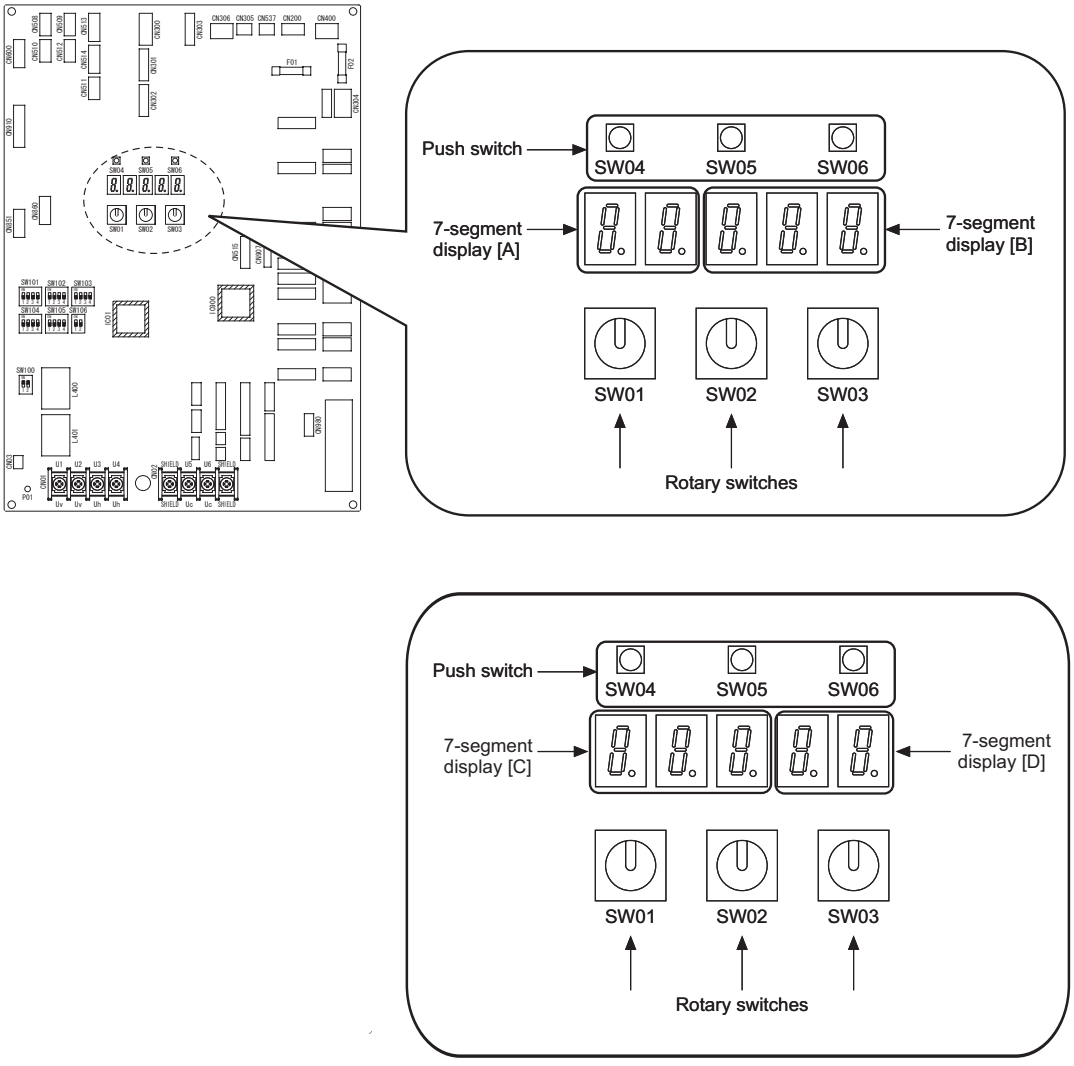
NOTE 1) This start/stop function only sends the signals from the outdoor unit to the indoor unit, such as start, stop, operation mode, etc. It does not resend the signals even if the indoor unit does not follow the sent signals.

NOTE 2) The above controls are not used during abnormal stop.

NOTE 3) If the signal receiving unit of the Compact 4-way Cassette type has never received a signal from the wireless remote controller, the indoor unit cannot be started or stopped (ON/OFF) from the outdoor unit. In the case above, follow the steps below.

1) Point the wireless remote controller at the receiving unit on the indoor unit and press the START/ STOP button on the wireless remote controller.
2) Confirm that the receiving unit sounds “Pi” and the operation lamp (green) on the receiving unit lights up, and then start/stop (ON/OFF) the indoor unit from the outdoor unit.

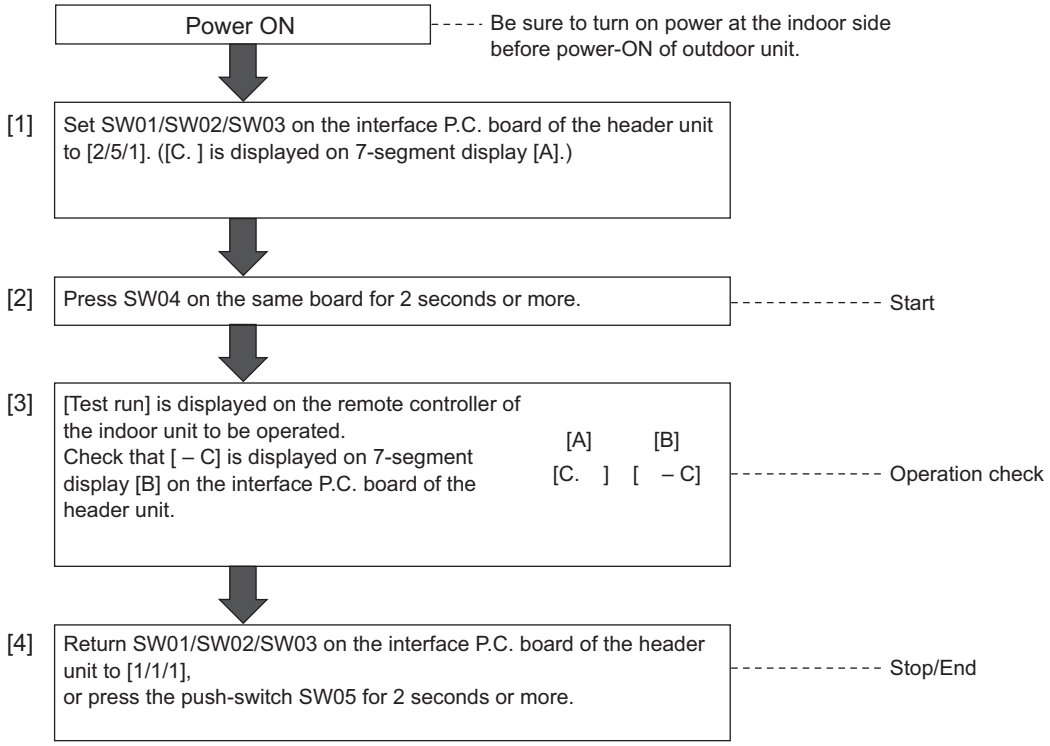
Interface P.C. board



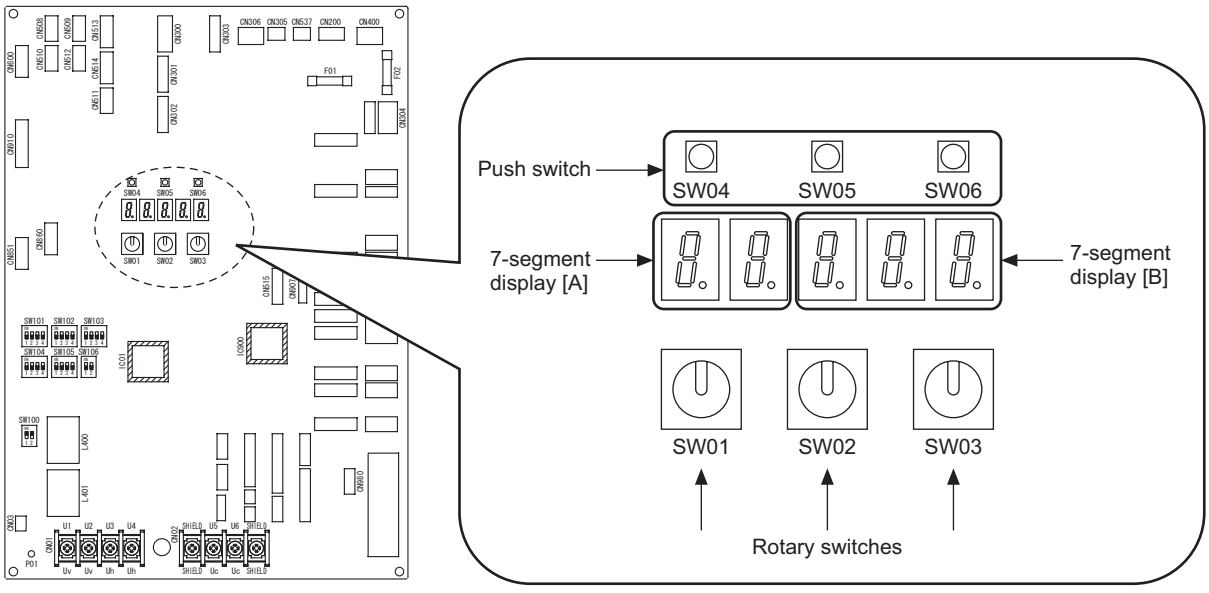
(1) Cooling test operation function

This function is provided to change collectively the mode of all the indoor units connected to the same system for the cooling test operation mode, by using switches on the interface board of the header unit.

<Operation procedure>



Interface P.C. board



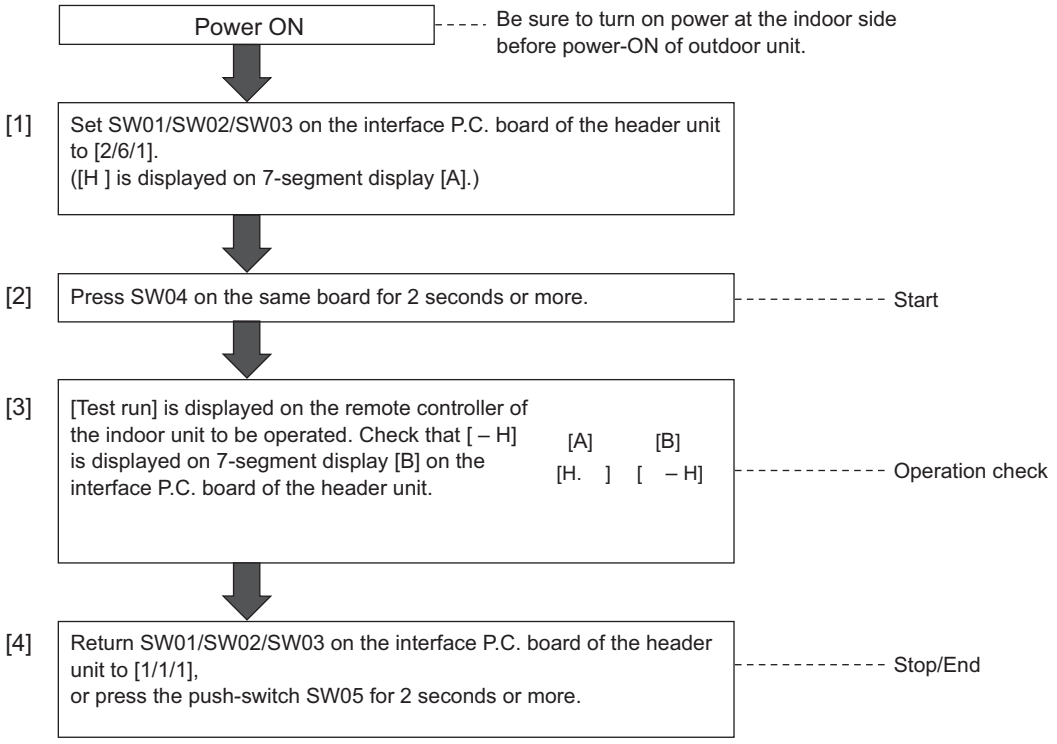
NOTE) The test operation returns to the normal operation after 60 minutes.

- The test run is a forced run that ignores the set temperature. Be sure to stop the test run after work, paying attention to the room temperature.
- After 60 minutes, the test run will be completed to protect the equipment, and the normal operation will be started according to the set temperature. However, if there is no remote controller (using a Central controller), please manually stop the test run after 60 minutes because there are some type of indoor unit that will continue operating test run even after 60 minutes.

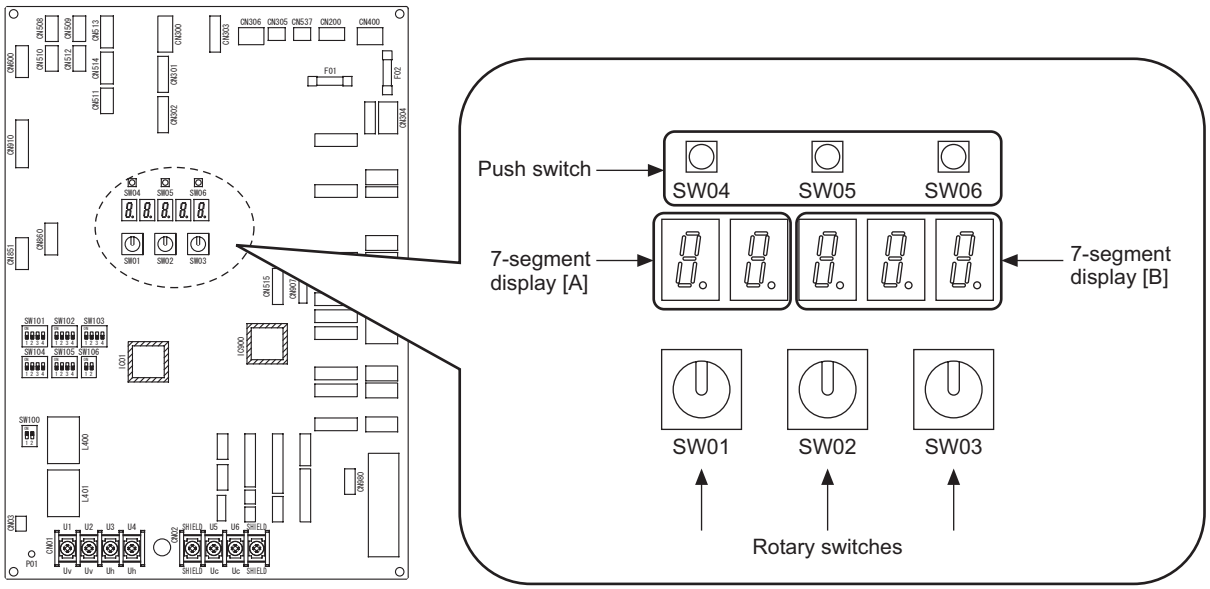
(2) Heating test operation function

This function is provided to change collectively the mode of all the indoor units connected to the same system for the heating test operation mode, by using switches on the interface board of the header unit.

<Operation procedure>



Interface P.C. board



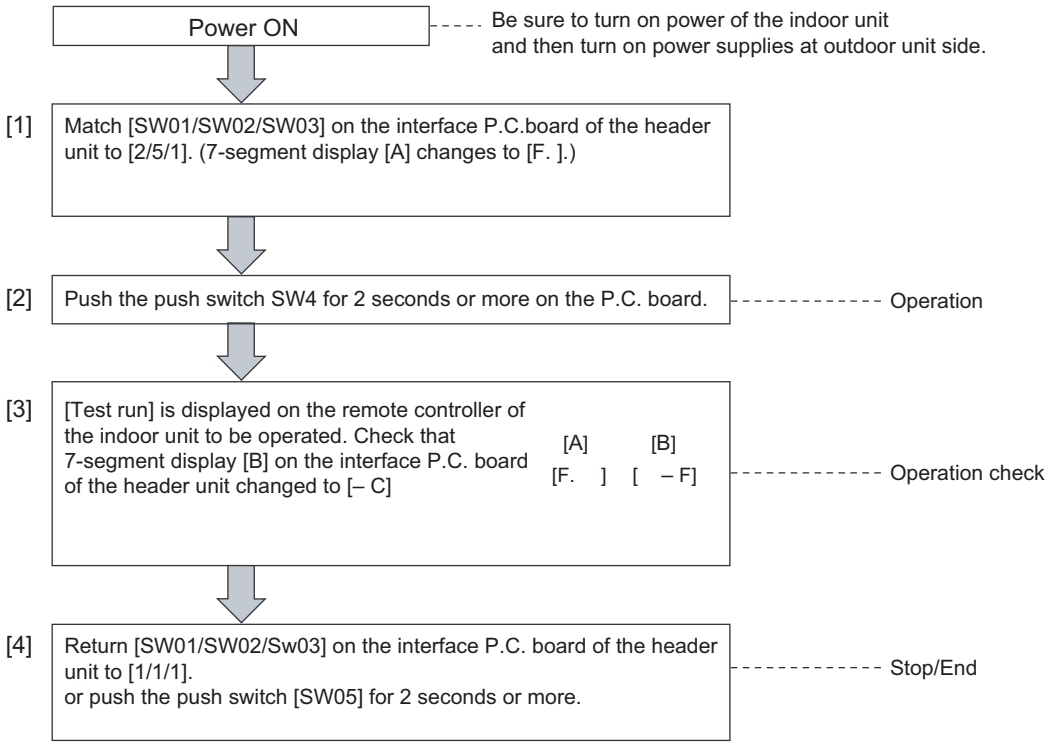
NOTE) The test operation returns to the normal operation after 60 minutes.

- The test run is a forced run that ignores the set temperature. Be sure to stop the test run after work, paying attention to the room temperature.
- After 60 minutes, the test run will be completed to protect the equipment, and the normal operation will be started according to the set temperature. However, if there is no remote controller (using a Central controller), please manually stop the test run after 60 minutes because there are some type of indoor unit that will continue operating test run even after 60 minutes.

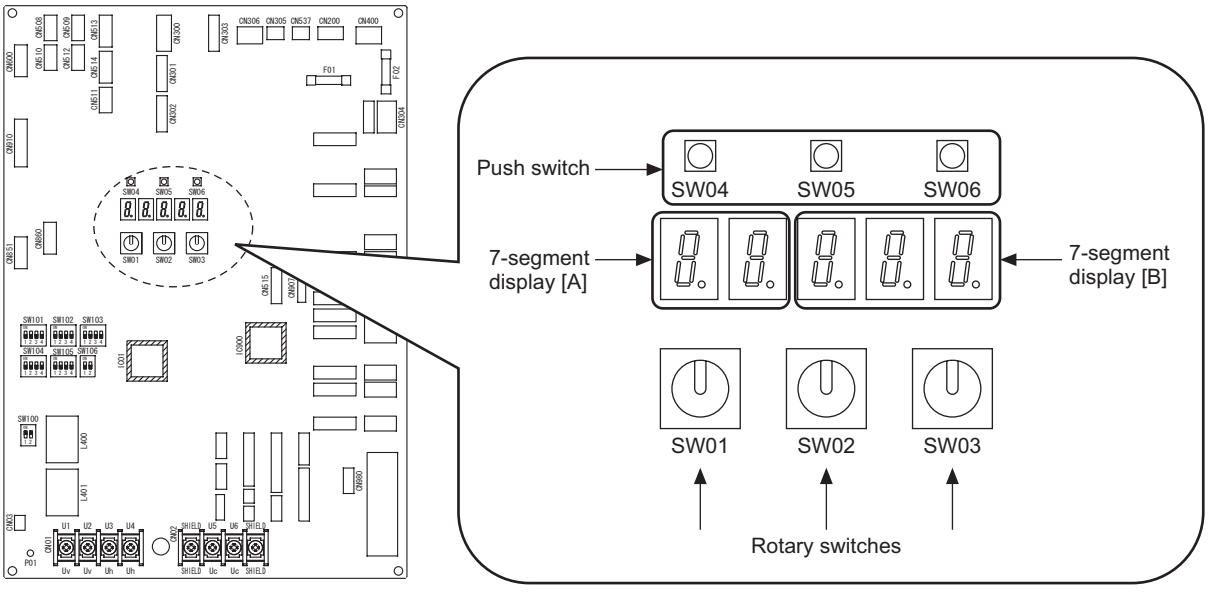
(3) Fan test operation function

This function is provided to change collectively the mode of all the indoor units connected to the same system for the fan test operation mode by using switches on the interface P.C. board of the header unit.

<Operation procedure>



Interface P.C. board



NOTE)

- Be sure to stop the test run after work.
- The test run finished after 60 minutes and the operation returns to normal operation. However, if there is no remote controller (using a central controller), please manually stop the test run after 60 minutes because there are some type of indoor unit that will continue operating test run even after 60 minutes.

(4) Batch start/stop (ON/OFF) function

This function is provided to start/stop collectively all the indoor units connected to the same system by using switches on the interface board of the header unit.

<Operation procedure>

Power ON

Be sure to turn on power at the indoor side before power-ON of outdoor unit.

If a check code is already displayed with SW01/SW02/SW03 being [1/1/1], return the status to normal one according to troubleshooting and then execute a test operation.

[1] Set up the operation mode of the remote controller.
(If it is not set up, the operation continues with the current mode.)
(FAN/COOL/HEAT)

The unit which is not given with priority by heating priority control, cooling priority control, and selection of cooling or heating mode is not operated.
In this case, "operation ready" or "operation mode controlled" is displayed on the remote controller.

[2] Set SW01/SW02/SW03 on the interface P.C. board of the header unit to [2/7/1].
([C.H] is displayed on 7-segment display [A].)

[3] Press SW04 on the same board for 2 seconds or more. — Start

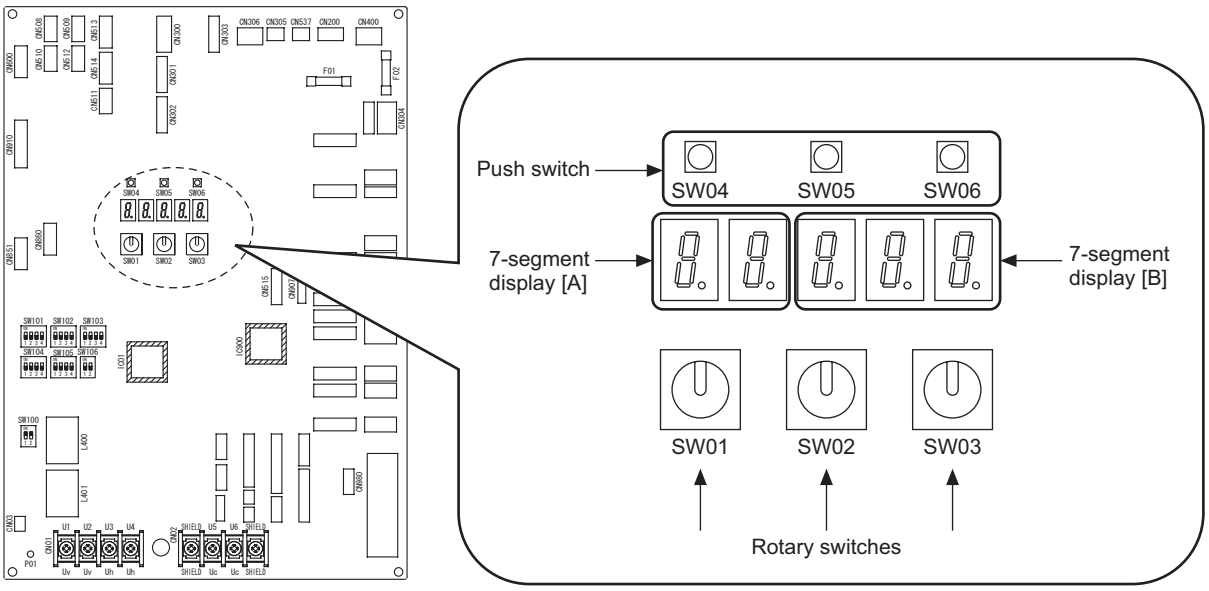
[4] The indoor unit to be started operates. — Operation check

If the discharge temperature does not change though COOL or HEAT has been set up from the remote controller, misconnection is considered.

[5] Press the push-switch SW05 on the interface P.C. board of the header unit for 2 seconds or more. — Stop

[6] After test operation, return the rotary switches SW01/SW02/SW03 on the interface P.C. board of the header unit to [1/1/1]. — End

Interface P.C. board



(5) Individual start/stop (ON/OFF) individual test operation function

This function is provided to start/stop (ON/OFF) individually each indoor unit connected to the same system by using switches on the interface board of the header unit.

Set SW01 [16] and set SW02, SW03 to indoor address No. (1 to 128) to be started (Refer to the following table*) - only the setup indoor unit starts operation.

(In the rotary switches of the indoor unit which operates in a group by the remote controller, the follower unit cannot be individually started or stopped. In this case, [- -] is displayed on 7-segment display [D] on the interface P.C. board of the header unit.)

<Operation procedure>

Power ON

Be sure to turn on power at the indoor side before power-ON of outdoor unit.

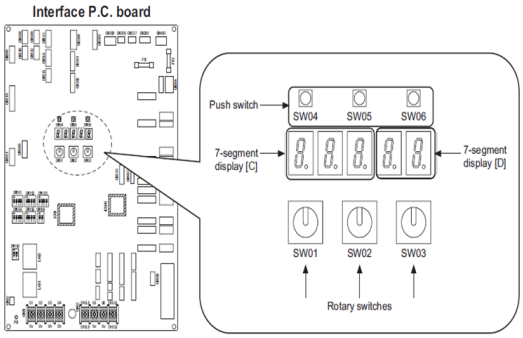
If a check code is already displayed with SW01/SW02/SW03 being [1/1/1], return the status to normal one according to troubleshooting and then execute a test operation.

Set up the operation mode of the remote controller. (If it is not set up, the operation continues with the current mode.)

The unit which is not given with priority by heating priority control, cooling priority control, and selection of cooling or heating mode is not operated. In this case, "operation ready" or "operation mode controlled" is displayed on the remote controller.

Match the rotary switches on the interface P.C. board of the header unit to the following table*.

(7-segment display)
[C] [ ] ↑ Address display of corresponding indoor unit
[D] [ ] ↑ [00] is displayed for 5 seconds after operation-ON.



Press the push-switch SW04 on the same board for 2 seconds or more.
(If pressed continuously for 10 seconds or more, the operation changes to the individual test operation.)

(7-segment display)
[C] [ ] ↑ Address display of corresponding indoor unit
[D] [ ] ↑ [11] is displayed for 5 seconds after operation-ON. (For individual test operation, [FF] is displayed.)

Start

The indoor unit to be started operates.

Operation check

If the discharge temperature does not change though COOL or HEAT has been set up from the remote controller, misconnection is considered.

Press the push-switch SW05 on the interface P.C. board of the header unit for 2 seconds or more.

(7-segment display)
[C] [ ] ↑ Address display of corresponding indoor unit
[D] [ ] ↑ [00] is displayed for 5 seconds after operation-ON.

After test operation, return the display select switches SW01/SW02/SW03 on the interface P.C. board of the header unit to [1/1/1].
Push the ON/OFF button on the remote control of the indoor unit under test.

End

*

SW01	SW02	SW03	Indoor unit address	
16	1 to 16	1	1 to 16	Set number of SW02
16	1 to 16	2	17 to 32	Set number of SW02 + 16
16	1 to 16	3	33 to 48	Set number of SW02 + 32
16	1 to 16	4	49 to 64	Set number of SW02 + 48
16	1 to 16	5	65 to 80	Set number of SW02 + 64
16	1 to 16	6	81 to 96	Set number of SW02 + 80
16	1 to 16	7	97 to 112	Set number of SW02 + 96
16	1 to 16	8	113 to 128	Set number of SW02 + 112

NOTE) The individual test operation returns to the normal operation after 60 minutes.

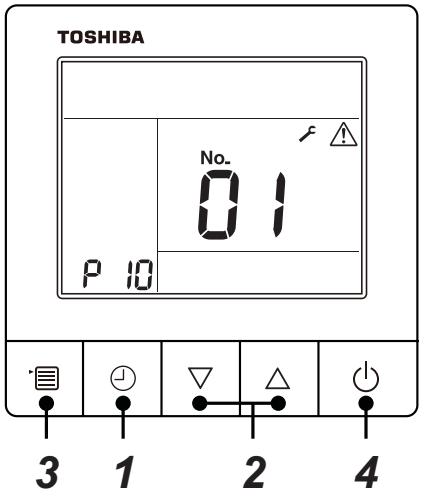
- The test run is a forced run that ignores the set temperature. Be sure to stop the test run after work, paying attention to the room temperature.
- After 60 minutes, the test run will be completed to protect the equipment, and the normal operation will be started according to the set temperature. However, if there is no remote controller less setting is set, some indoor models will not complete the test run even after 60 minutes have passed.

7-7-3. Check Code Clearing Function

(1)Clearing from the main remote controller

<RBC-ASCU11*>

▼ Clearing a check code of the outdoor unit
There is no such function in the remote controller.



1 **Push the [OFF timer] button for over 10 seconds.**

2 **Each time the [▽ or △] button is pushed, the recorded troubleshooting history is displayed in sequence.**

3 **Push the [menu] button for over 10 seconds, doing so deletes the entire troubleshooting history of the indoor unit.**

4 **After you have finished checking, push the [ON/OFF] button to return to normal mode.**

(2) Clearing check code by using switches on the interface board of the header unit

Using the switches on the interface P.C. board of the header unit, this function is to clear the currently detected check code for each refrigerant circuit system without resetting the power supply.

Check codes in both outdoor and indoor units are once cleared, and check code detection is performed again.

[1] Set the rotary switches on the interface P.C. board of the header unit as follows.
Set SW01/SW02/SW03 to [2/16/1]

7-segment display
[A] [B]
[E r] [ ]

↓

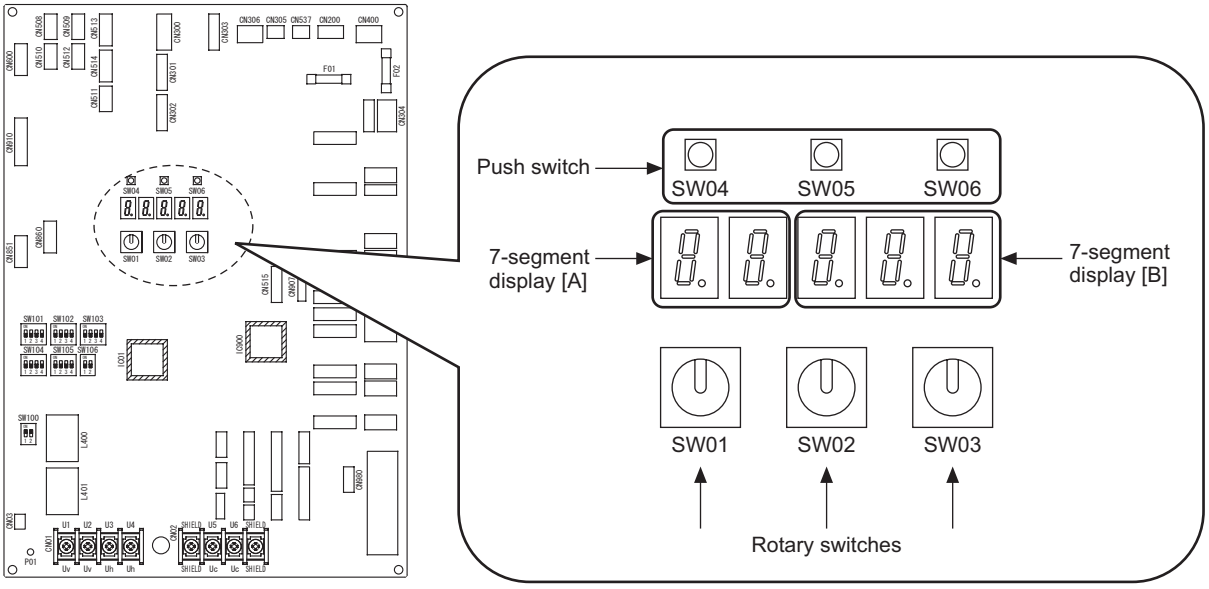
[2] Press the push-switch SW04 on the same board for 5 seconds or more.

↓

[3] [C L] is displayed in 7-segment display [B] on the board (for 5 seconds), and check code is completely cleared.

7-segment display
[A] [B]
[E r] [C L]

Interface P.C. board



(3) Clearing check code by resetting power

This function is provided to clear check code in a system by resetting the power of all the outdoor and the indoor units. As same as the clearing method by the interface P.C. board, check codes of both the outdoor and the indoor units are once cleared, and check code detection is performed again.

<Method>

(1) Be sure to reset power of both the outdoor and the indoor units.

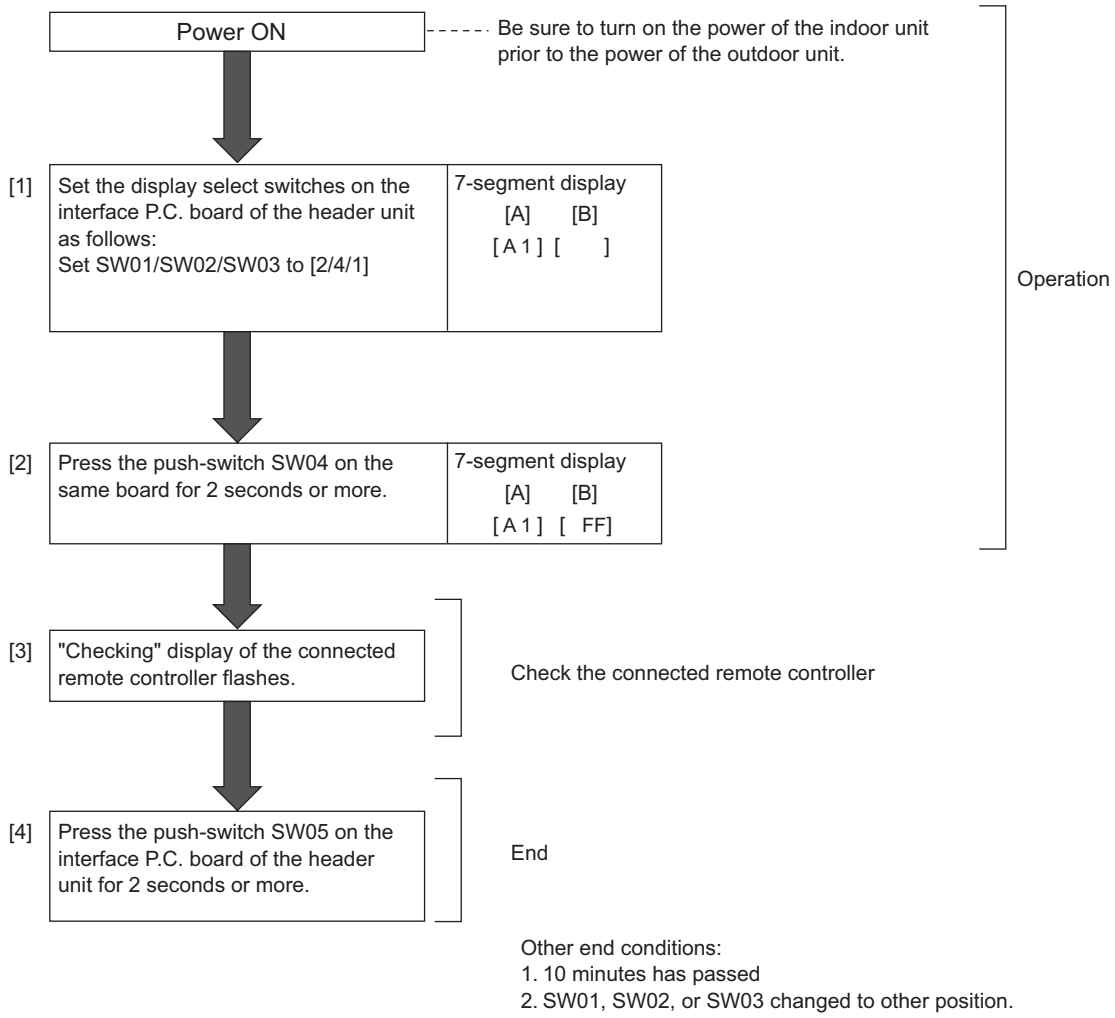
(2) Turn on the power of the indoor unit prior to the power of the outdoor unit.
(If the power is turned on in reverse order, a check code [E19] (No. of header unit trouble) is output.)

NOTE) After power reset, it requires usually 3 minutes to power-on due to the initial communication of the system. In some cases, it requires max. 10 minutes.

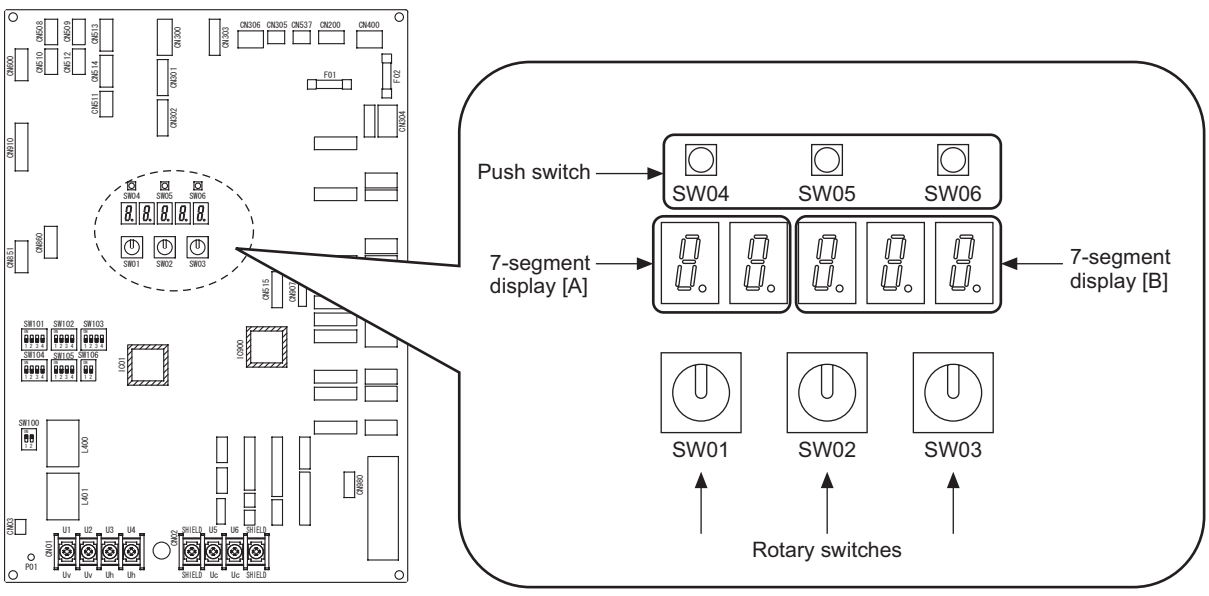
7-7-4. Remote Controller Distinction Function

This function is provided to distinguish the remote controller connected to the indoor unit from the outdoor unit for a refrigerant circuit system by using switches on the interface P.C. board of the header unit.

<Distinction procedure>



Interface P.C. board



7-7-5. Pulse Motor Valve (PMV) Forced Open/Close Function in Indoor Unit

This function is provided to open or close forcedly PMV for 2 minutes in all the indoor units by the switch operation on the interface P.C. board of the header unit.
This function is also used to open PMV fully when turning off the power and executing an operation.

<Operation>

[Open fully]
Set the switches SW01/SW02/SW03 on the interface P.C. board of the header unit to [2/3/1], and press SW04 for 2 seconds or more.
(Display appears on 7-segment display for 2 minutes as follows.) [P] [FF]

[Close fully]
Set the switches SW01/SW02/SW03 on the interface P.C. board of the header unit to [2/3/1], and press SW05 for 2 seconds or more.
(Display appears on 7-segment display for one minute as follows.) [P] [00]

[Clear]
After 2 minutes (1 minutes for “Close fully”) after setting up, the opening automatically returns to the normal opening.

7-7-6. Pulse Motor Valve (PMV) Forced Open/Close Function and Solenoid valve Forced ON Function in Outdoor Unit

The solenoid valves provided to outdoor units can be forced ON (open) by switching operations at the interface P.C. board of the outdoor unit.
Also, the pulse motor valves (PMV1, PMV2, PMV3, PMV4) of the outdoor unit can be forced to full-open, half open, and full-closed for two minutes.
Use this function to check for valve or PMV malfunctioning, clogging, and so forth.

[Control start method]

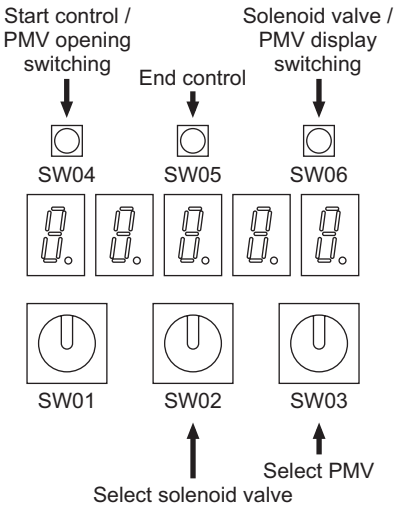
(1) Set the rotary switches [SW01/SW02/SW03] on the interface P.C. board of the outdoor unit to [2/1/3]. When [H.r] is displayed, press the push switch [SW04] for one second or longer, which changes the display to [H. r – – –], and this control is started.

[Method to switch solenoid valve/PMV display]

(1) Solenoid valve display is made immediately after starting control. The 7-segment display is [H. r – – –].

(2) Pressing the push switch [SW06] switches the display to [P. ∗], which is PMV display.
Each time the push switch [SW06] is pressed, the display changes between solenoid valve display and pulse motor valve (PMV) display.

[H. r – – –] Solenoid valve display ⟷ long-press SW06 for 1 second ⟷ [P. ∗ ∗ ∗ ∗] PMV display



(3) Follow the method below for solenoid valve and PMV operations.
* Take care, as operations of each of the solenoid valve and PMV are enabled, regardless of which is displayed.

[Method of operating solenoid valve (forced ON)]

(1) Set the rotary switch [SW02] to 2, and five seconds later SV41 will come ON. [H.r 41] will be displayed in the 7-segment display in the solenoid valve display screen.

(2) Any desired solenoid valve can be forced ON by changing the setting No. of the rotary switch [SW02]. The following table shows the forced-ON/normal control patterns for each solenoid valve.

Rotary switch			7-segment display (solenoid valve display)	Operation patterns of solenoid valve/heater (✓ Forced ON, – : normal control)						
SW01	SW01	SW01		SV41	SV42	SV3D	SV3F	SV2	SV7	Compressor 1, 2 case heater
2	1	# Used in PMV operations	[H.r – – –]	–	–	–	–	–	–	✓
	2		[H.r 4 1]	✓	–	–	–	–	–	✓
	3		[H.r 4 2]	–	✓	–	–	–	–	✓
	4		[H.r 3 D]	–	–	✓	–	–	–	✓
	5		[H.r 3 F]	–	–	–	✓	–	–	✓
	6		[H.r 3 –]	–	–	✓	✓	–	–	✓
	8		[H.r 2 –]	–	–	–	–	✓	–	✓
	9		[H.r 7 –]	–	–	–	–	–	✓	✓
	10 ~ 15		[H.r – – –]	–	–	–	–	–	–	✓
	16		[H.r A L L]	✓	✓	✓	✓	✓	✓	✓

* The 7-segment display will show [H.r—] for outdoor unit models that do not have solenoid valves.

[Method of operating pulse motor valve (PMV) (forced open/close)]

(1) Use the rotary switch [SW03] to select the PMV to operate.
When [P#.] is displayed in the PMV display, PMV# is operating according to normal control.
(#: selected PMV No.)

(2) Pressing the push switch [SW04] for one second sets the selected PMV# to full-open.
The PMV display will be [P# . F o].
Each time the push switch [SW04] is pressed again for one second, the opening changes in the order of full open [P# . F o] → half-open [P# . C o] → full-closed [P# . F c] → normal control [P#] → full-open [P# . F o] → ... , and so on.

Note:
Full open and half-open cannot be selected for PMV5 and PMV6.

(3) The PMV opening returns to normal control after two minutes elapses from changing the opening.

(Operation method example) Operation of PMV 1

Rotary switch			Push switch	7-segment display (pulse motor valve (PMV) display)	Opening	
SW01	SW02	SW03	SW04 (Change PMV opening)			
2	* Used in solenoid valve selection	3	Long-press 1 second / Long-press 1 second / Long-press 1 second / Long-press 1 second	[P1.]	PMV1 Normal control	2 minutes elapsed
				[P1.F o]	PMV1 Full-open	2 minutes elapsed
				[P1.C o]	PMV1 Half-open	2 minutes elapsed
				[P1.F c]	PMV1 Full-closed	

(4) To operate a different PMV, select with the rotary switch [SW03], and operate the opening with the push switch [SW04].
Even when [SW03] is switched, the PMV opening operated immediately before remains effective, so up to four PMV openings can be operated in parallel.

Rotary switch			Push swich	7-segment display (pulse motor valve (PMV) display)	Opening
SW01	SW01	SW01	SW04		
2	# Used in PMV operations	3	Long-press 1 second to change opening	[P1.]	PMV1 Normal control
				[P1.F o]	PMV1 Full-open
				[P1.C o]	PMV1 Half-open
				[P1.F c]	PMV1 Full-closed
		4	Long-press 1 second to change opening	[P2.]	PMV2 Normal control
				[P2.F o]	PMV2 Full-open
				[P2.C o]	PMV2 Half-open
				[P2.F c]	PMV2 Full-closed
		5	Long-press 1 second to change opening	[P3.]	PMV3 Normal control
				[P3.F o]	PMV3 Full-open
				[P3.C o]	PMV3 Half-open
				[P3.F c]	PMV3 Full-closed
		6	Long-press 1 second to change opening	[P4.]	PMV4 Normal control
				[P4.F o]	PMV4 Full-open
				[P4.C o]	PMV4 Half-open
				[P4.F c]	PMV4 Full-closed
		7	Long-press 1 second to change opening	[P5.]	PMV5 Normal control
				[P5.F c]	PMV5 Full-closed
		8	Long-press 1 second to change opening	[P6.]	PMV5 Normal control
				[P6.F c]	PMV5 Full-closed

[Cancelation method]

To cancel (end) control of this function, perform one of the following methods. The solenoid valve and pulse motor valve (PMV) will return to normal control.

- Press the push switch [SW05] for one second or longer.
- Set the rotary switch [SW01] to other than [2].

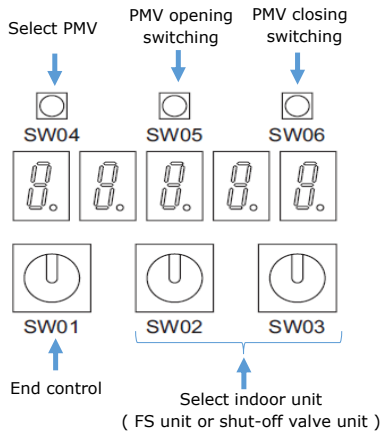
7-7-7. Pulse Motor Valve (PMV) Forced Open/Close Function in FS unit and shut-off valve unit.

The pulse motor valves (PMV-L , PMV-D, PMV-S) of the FS unit and shut-off valve unit can be forced to full-open and full-closed for 30 minutes. Use this function to check for PMV malfunctioning, clogging, miss connection, and so forth.

[Control start method]

(1) Set SW01 [11] and set SW02, SW03 to indoor address No. (1 to 128) to be started (Refer to the following table*)
- only the FS unit or shut-off valve unit connecting to the setup indoor unit starts operation.
[F S. on] is displayed for two seconds.

SW02	SW03	Indoor unit address	
1 to 16	1	1 to 16	Set number of SW02
1 to 16	2	17 to 32	Set number of SW02+16
1 to 16	3	33 to 48	Set number of SW02+32
1 to 16	4	49 to 64	Set number of SW02+48



[Method to switch PMV display]

(1) PMV-L display is made immediately after starting control.

(2) Each time the push switch [SW04] is pressed for one second or more., the display changes PMV-L display, PMV-S display and PMV-D display.

- PMV-L
  The 7-segment display is [P L.***] ⇔ [P L. ...o P] or [P L. ... c L].
- PMV-S
  The 7-segment display is [P S.***] ⇔ [P S. ...o P] or [P S. ... c L].
- PMV-D
  The 7-segment display is [P d.***] ⇔ [P d. ...o P] or [P d. ... c L].

(0.5) second period) ※ *** : indoor unit address No.

oP	PMV full-open
cL	PMV full-close

(3) Follow the method below for PMV operations.

[Method of operating pulse motor valve (PMV) (forced open/close)]

(1) When [P#.] is displayed on the PMV display, PMV# is operating according to normal control.
(#: selected PMV-L, PMV-S, or PMV-D)

(2) Pressing the push switch [SW05] for one second sets the selected PMV# to full-open.
The PMV display will be ［P #. * P #. ⇔ ［P #. … o P］. (0.5 second period)

(3) Pressing the push switch [SW06] for one second sets the selected PMV# to full-close.
The PMV display will be ［P #. * P #. ⇔ ［P #. … o P］. (0.5 second period)

(4) The PMV opening returns to normal control after 30 minutes elapses from changing the opening

(5) To operate a different PMV, select with the rotary switch [SW03], [SW02], and the push switch [SW04], and operate the opening with the push switch [SW05] and the closing with the push switch [SW06].
Even when [SW02], [SW03] and [SW04] is switched, the PMV opening operated immediately before remains effective, PMV openings can be operated in parallel.

[Cancellation method]

To cancel (end) control of this function, perform one of the following methods. The pulse motor valve (PMV) will return to normal control.

- Set the rotary switch [SW01] to other than [11].

7-7-8. Fan Operation Check in Outdoor Unit

This function is provided to check the fan operation of the outdoor unit by using switches on the interface P.C. board in the outdoor unit. The fan speed can be controlled by setting of the switches. Use this function to check the operation or abnormal sound in the fan system. And, use this function while the system is stopped.

NOTE) Do not use this function during operation of the compressor. It may damage the compressor.
Two fans move synchronously in two fan model (MMY-MUP1601* to MUP2401*).

[Operation]

(1) Set the switches SW01/SW02/SW03 on the interface P.C. board of the outdoor unit to [2/1/4].

(2) When [F. d] is displayed in 7-segment display [A], keep pressing the switch SW04 for 2 seconds or more.

(3) When [63] is displayed in 7-segment display [B], the fan starts operation. (Max. mode operation)

(4) After that, by changing the setup number of the switches SW02 and SW03, 7-segment display [B] and the fan mode are changed.
(Mode output pattern of the fan is as follows.)

SW02	SW03	7-segment display [B]	Fan mode
1	4	[63]	63
2		[62]	62
3		[61]	61
4		[60]	60
5		[59]	59
6		[58]	58
7		[57]	57
8		[56]	56
9		[55]	55
10		[54]	54
11		[53]	53
12		[52]	52
13		[51]	51
14		[50]	50
15		[49]	49
16		[48]	48
1	5	[47]	47
2		[46]	46
3		[45]	45
4		[44]	44
5		[43]	43
6		[42]	42
7		[41]	41
8		[40]	40
9		[39]	39
10		[38]	38
11		[37]	37
12		[36]	36
13		[35]	35
14		[34]	34
15		[33]	33
16		[32]	32

SW02	SW03	7-segment display [B]	Fan mode
1	6	[31]	31
2		[30]	30
3		[29]	29
4		[28]	28
5		[27]	27
6		[26]	26
7		[25]	25
8		[24]	24
9		[23]	23
10		[22]	22
11		[21]	21
12		[20]	20
13		[19]	19
14		[18]	18
15		[17]	17
16		[16]	16
1	7	[15]	15
2		[14]	14
3		[13]	13
4		[12]	12
5		[11]	11
6		[10]	10
7		[9]	9
8		[8]	8
9		[7]	7
10		[6]	6
11		[5]	5
12		[4]	4
13		[3]	3
14		[2]	2
15		[1]	1
16		[0]	0

[Clear]

This function is cleared by one of the following operations.

(1) When SW01 setting number was changed to other number.

(2) Press-switch SW05 was pressed for 2 seconds or more.

7-7-9. Abnormal Outdoor Unit Discrimination Method by Fan Operating Function

This function is provided to forcedly operate the fan of the outdoor unit in which a check code occurred or the fan of the normal outdoor unit by the switch operation on the interface P.C. board in the header unit.
To specify which one of the follower units connected to the system had problem, use this function for the system stop due to a follower unit problem (Check code [E28]).

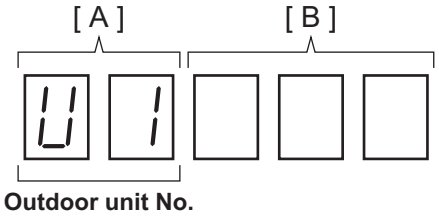
[Operation]

<In case to operate the fan in the failed outdoor unit only>

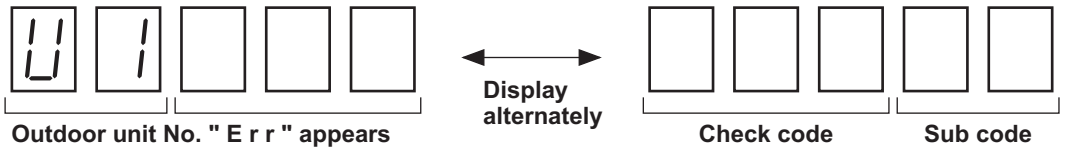
(1) Check that the switches SW01/SW02/SW03 on the interface P.C. board in the header unit are set to [1/1/1].

7-segment display

Normal state



Abnormal state



(2) Press the push-switch SW04 for 2 seconds or more.
(3) [E 1] is displayed on 7-segment display [A].
(4) The fan of the outdoor unit in which problem occurred starts operation within approx. 10 seconds after [E 1] was displayed.

<In case to operate the fans in all the normal outdoor units>

(1) Check that the switches SW01/SW02/SW03 on the interface P.C. board in the header unit are set to [1/1/1].
(2) Press the push-switches SW04 and SW05 at the same time for 2 seconds or more.
(3) [E 0] is displayed on 7-segment display [A].
(4) The fans of all the normal outdoor units start operation with the Max. fan speed within approx. 10 seconds after [E 0] was displayed.

[Release]

Press the push-switch SW05 on the interface P.C. board in the header unit for 2 seconds or more.
The outdoor fan which was operated stops.
* Check that [U. 1] is displayed on 7-segment display [A], and then finish the work.

7-7-10. Manual Adjustment Function of Outside Temperature (TO) Sensor

This function is provided to fix TO sensor value manually by the switch operation on the interface P.C. board in the outdoor unit. When the unit stops abnormally due to TO sensor failure, etc, an emergent operation is available by setting up the value manually to position near the current outside temperature.

[Operation]

(1) Set the rotary switches on the interface P.C. board to numbers as follows:
- SW01/SW02/SW03 to [2/1/15]
- 7-segment display: [t o]

(2) Keep pressing the push-switch SW04 on the interface P.C. board for 1 second or more. The mode changes to the TO sensor value fix manual mode.

(3) Pressing the push-switch SW04 increases the setting temperature and pressing the SW05 decreases the setting temperature. Set the temperature to any values.

[Clear]

Return SW01/SW02/SW03 on the interface P.C. board in the outdoor unit to [1/1/1].

NOTE) If operated with TO sensor fixed by this function, the system control operation of the air conditioner may not be based on the specification of the product. Therefore an emergent operation should be restricted to a day or so.
When the outside temperature is 45ºC or more, set to 45ºC (SW02=”9")

<Service support function list>

SW01	SW02	SW03	7-segment display [A]	Function contents
2	1	1	[J . C]	Refrigerant circuit and control communication line check function (Cooling operation)
	2		[J . H]	Refrigerant circuit and control communication line check function (Heating operation)
	3		[P .]	Indoor PMV forced full open function
	4		[A . 1]	Indoor remote controller discriminating function
	5		[C .]	Cooling test operation function
	6		[H .]	Heating test operation function
	7		[C . H]	Indoor collective start/stop (ON/OFF) function
	9		[F .]	Fan test operation function
	11		[r . d]	Outdoor refrigerant recovery operation function (Reclaim function)
	16		[E . r]	Check code clear function

2	1~16	3	[H . r]	Solenoid valve forced open/close function
2	1~16	4~7	[F . d]	Fan forced operation function
2	1~16	15	[t . o]	Outside temperature sensor manual adjustment function

16	1 to 16	1	[01] to [16]	Indoor No. 1 to 16	Set number of SW02
		2	[17] to [32]	Indoor No. 17 to 32	Set number of SW02 + 16
		3	[33] to [48]	Indoor No. 33 to 48	Set number of SW02 + 32
		4	[49] to [64]	Indoor No. 49 to 64	Set number of SW02 + 48
		5	[65] to [80]	Indoor No. 65 to 80	Set number of SW02 + 64
		6	[81] to [96]	Indoor No. 81 to 96	Set number of SW02 + 80
		7	[97] to [112]	Indoor No. 97 to 112	Set number of SW02 + 96
		8	[113] to [128]	Indoor No. 113 to 128	Set number of SW02 + 112

SW01	SW02	SW03	7-segment display [A/B]	Function contents
1	1	1	[U 1] [E28]	Follower unit check code / Corresponding unit fan operation function

7-7-11. Confirmation of the check code (L02, L11, L13, L14) occurred during installation

Use this function to check for the check codes (L02, L11, L13, L14) that may occur during installation.

[Method to switch the check codes L02 display]

(1) Set the rotary switches [SW01/SW02/SW03] on the interface P.C. board of the outdoor unit to [12/1/1]. The 7-segment display is [**]. ※ ** : indoor unit address No.

(2) If there is more than one corresponding indoor unit, the display of the indoor unit address ** changes every time the push switch [SW04] is pressed.

[Method to switch the check codes L11 display]

(1) Set the rotary switches [SW01/SW02/SW03] on the interface P.C. board of the outdoor unit to [12/1/2]. The 7-segment display is [**]. ※ ** : indoor unit address No.

(2) If there is more than one corresponding indoor unit, the display of the indoor unit address ** changes every time the push switch [SW04] is pressed.

[Method to switch the check codes L13 display]

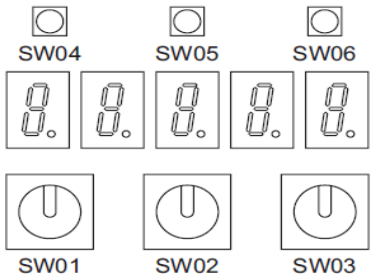
(1) Set the rotary switches [SW01/SW02/SW03] on the interface P.C. board of the outdoor unit to [12/1/3]. The 7-segment display is [**]. ※ ** : indoor unit address No.

(2) If there is more than one corresponding indoor unit, the display of the indoor unit address ** changes every time the push switch [SW04] is pressed.

[Method to switch the check codes L14 display]

(1) Set the rotary switches [SW01/SW02/SW03] on the interface P.C. board of the outdoor unit to [12/1/4]. The 7-segment display is [**]. ※ ** : indoor unit address No.

(2) If there is more than one corresponding indoor unit, the display of the indoor unit address ** changes every time the push switch [SW04] is pressed.



7-7-12. Confirmation of the number of FS units or shut-off valve units connected

Use this function to check for the number of FS units or shut-off valve units connected.

[Method to display the number of FS units or shut-off valve units connected display]

(1) Set the rotary switches [SW01/SW02/SW03] on the interface P.C. board of the outdoor unit to [1/3/14].
The 7-segment display is [F.S. **]. (** : Number of FS units)

(2) Each time the push switch [SW04] is pressed, the display changes between the number of FS units display and the number of shut-off valve units display.
The 7-segment display is [F.S. **], when the number of FS units display selected.
(** : Number of FS units)
The 7-segment display is [S.o. **], when the number of shut-off valve units display selected.
(** : Number of shut-off valve units)

7-7-13. Refrigerant leakage detection ※(This is not a refrigerant leakage detected by the Leak detector.)
The refrigerant leakage can be confirmed by using the switches on Interface P.C.board of the outdoor unit. If there is a leak, the location must be found in order to recover the refrigerant.
After that, implement appropriate countermeasure and refill the refrigerant to its standard volume. Refrigerant leaks can be detected by comparing the Actual opening of PMV with the Calculated opening of PMV* during the operation.

* Calculated opening of PMV: calculated from the initial value(C.i/H.i), the pressure sensor value (C.i/H.i), the compressor's , and the opening of PMV. The initial values are automatically saved when the specified conditions are met.
(A leak can be detected only when C.i/H.i = 1)

[Operation]

(1) Confirming the refrigerant leakage
Set SW01 to 03 as shown in the following table to confirm whether the leaks are being detected.
(It also can be confirmed by remote control monitor function. Refer to 7-7-16. Monitor function of remote controller switch.)

(2) Clearing the initial value
If the system is changed (e.g. indoor units are increased/replaced, outdoor units are moved, or refrigerant is refilled/increased) it is necessary to clear the initial value that had been saved.
Make sure that the compressor has stopped, and then press and hold SW04 for at least 5 seconds.

SW01	SW02	SW03	Display detail		
2	13	14	Refrigerant leakage detection	A	[L. d]
				B	Normal: [… … 0] Possibility of leakage: [… … 1] Clear the data: […C.L] (Only Display for 5 seconds)

(3) Checking the record of the initial value
Set SW01 to 03 as shown in the following table to confirm the record of the initial value.

SW01	SW02	SW03	Display detail		
2	14	14	Cooling initial value	A	[C. i]
				B	Incomplete: [… … 0] Completed: [… … 1]
2	15	14	Heating initial value	A	[H. i]
				B	Incomplete: [… … 0] Completed: [… … 1]

[Clear]

Return SW01/SW02/SW03 on the Interface P.C.board in the outdoor unit to [1/1/1] .

NOTE)

(a) During the operation, the slow leaks can be detected.
However, if the air-conditioner cannot cooling down / cannot warming up / make an unusual stop, the slow leaks might not be detectable. The fast leaks always cannot be detected.

(b) Poor refrigerant circulation may be detected as a refrigerant leaks.
(e.g. plugged strainers / capillaries, malfunction / clogging of the PMV / 2-way valve / 4-way valve)

(c) Due to the outside temperature, the initial value may not be recorded, or it may be impossible to determine the leakage.

(d) The initial value cannot be saved until the accumulated operating time has reached at least 20 hours.

(e) The initial value cannot be saved if the indoor unit's operating ratio is low.

(f) If the following indoor units are connected, leakage determination is not possible.
• Air to air heat exchanger with DX coil unit

7-7-14. Monitor Function of Remote Controller Switch

Switching to the service monitor mode

<Content>

The sensor temperature or operation status of the remote controller, indoor unit, or the outdoor unit can be known by switching to the service monitor mode from the remote controller.

<RBC-ASCU11*>

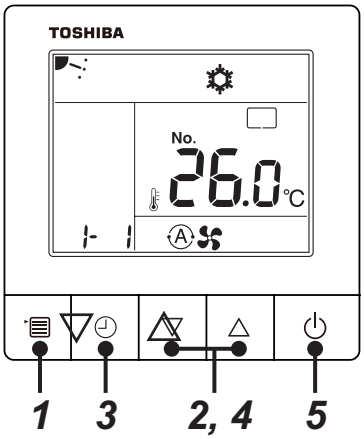
1 **Push the [menu] button for over 10 seconds.**

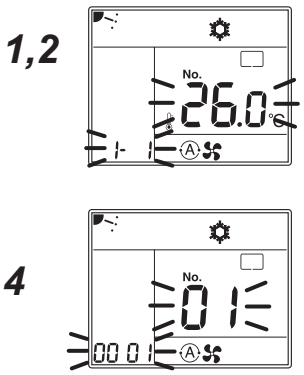
2 **Every pushing [ ] [ ] buttons, the indoor unit numbers in group control are displayed successively.**

3 **Push the [OFF timer] button to confirm the selected indoor unit.**

4 **Every pushing [▽] [△] buttons, CODE No. of the item is changed successively.**

5 **After you have finished checking, push the [ON/OFF] button to return to normal mode.**





	Code No.	Data name	Display format	Unit	Remote controller display example
Indoor unit data *2	00	Room temperature (Use to control)	X1	°C	[0024]=24°C
	01	Room temperature (Remote controller)	X1	°C	
	02	Indoor suction air temperature (TA)	X1	°C	
	03	Indoor coil temperature (TCJ)	X1	°C	
	04	Indoor coil temperature (TC2)	X1	°C	
	05	Indoor coil temperature (TC1)	X1	°C	
	06	Indoor discharge air temperature (TF) *1	X1	°C	
	07	Indoor fan motor number of revolutions	X1	rpm	[1000]=1000rpm
	08	Indoor PMV opening	X1/10	pls	[0150]=1500pls
	F3	Filter sign time	X1	h	[2500]=2500h
	F9	Suction exchanger (TSA) *1 temperature of air to air heat	X1	°C	[0024]=24°C
	FA	Outside air temperature (TOA) *1	X1	°C	
System data	0A	No. of connected indoor units	X1	units	[0048]=48 units
	0B	Total horsepower of connected indoor units	X10	HP	[0415]=41.5HP
	0C	No. of connected outdoor units	X1	units	[0003]=3 units
	0D	Total horsepower of outdoor units	X10	HP	[0420]=42HP

	Code No.					Data name	Display format	Unit	Remote controller display example
	U1	U2	U3	U4	U5				
Outdoor unit individual data 1 *3	10	20	30	40	50	High-pressure sensor detection pressure(Pd)	X100	Mpa	[0123]=1.23MPa
	11	21	31	41	51	Low-pressure sensor detection pressure (Ps)	X100	Mpa	
	12	22	32	42	52	Compressor 1 discharge temperature (TD1)	X1	°C	[0024]=24°C
	13	23	33	43	53	Compressor 2 discharge temperature (TD2)	X1	°C	
	14	24	34	44	54	Suction temperature (TS1)	X1	°C	
	15	25	35	45	55	Suction temperature (TS3)	X1	°C	
	16	26	36	46	56	Outdoor heat exchanger temperature (TE1)	X1	°C	
	17	27	37	47	57	Outdoor sub-heat exchanger temperature (TE2)	X1	°C	
	18	28	38	48	58	Outdoor sub-heat exchanger temperature (TE3)	X1	°C	
	19	29	39	49	59	Outside ambient temperature (TO)	X1	°C	
	1A	2A	3A	4A	5A	Temperature at liquid side (TL1)	X1	°C	
	1B	2B	3B	4B	5B	Suction temperature (TS2)	X1	°C	
	1C	2C	3C	4C	5C	Suction temperature (TS3)	X1	°C	
	1D	2D	3D	4D	5D	Outdoor coil temperature (TG1)	X1	°C	
	1E	2E	3E	4E	5E	Outdoor coil temperature (TG2)	X1	°C	
	1F	2F	3F	4F	5F	Outdoor coil temperature (TG3)	X1	°C	

	Code No.					Data name	Display format	Unit	Remote controller display example
	U1	U2	U3	U4	U5				
Outdoor unit individual data 2 *4	60	70	80	90	A0	Compressor oil temperature 1 (TK1)	X1	°C	[0024]=24°C
	61	71	81	91	A1	Compressor oil temperature 2 (TK2)	X1	°C	
	62	72	82	92	A2	PMV 1 opening	X1	pls	[0500]=500pls
	63	73	83	93	A3	PMV 2 opening	X1	pls	
	64	74	84	94	A4	PMV 3 opening	X1	pls	
	65	75	85	95	A5	PMV 4 opening	X1	pls	
	66	76	86	96	A6	Compressor 1 current (I1)	X10	A	[0135]=13.5A
	67	77	87	97	A7	Compressor 2 current (I2)	X10	A	
	68	78	88	98	A8	Compressor 1 revolutions	X10	rps	[0642]=64.2rps
	69	79	89	99	A9	Compressor 2 revolutions	X10	rps	
	6A	7A	8A	9A	AA	Outdoor fan mode	X1	mode	[0058]=58 mode
	6B	7B	8B	9B	AB	Inverter of Compressor 1 heat sink temperature (TH1)	X1	°C	[0024]=24°C
	6C	7C	8C	9C	AC	Inverter of Compressor 2 heat sink temperature (TH2)	X1	°C	
	6D	7D	8D	9D	AD	Inverter of outdoor fan 1 heat sink temperature (TH Fan1)	X1	°C	
	6E	7E	8E	9E	AE	Inverter of outdoor fan 2 heat sink temperature (TH Fan2)	X1	°C	
	6F	7F	8F	9F	AF	Outdoor unit horsepower	X1	HP	[0016]=16HP

	Code No.	Data name	Display format	Unit	Remote controller display example
Outdoor unit individual data 3 *5	B0	Heating/cooling recovery control	0 : Normal 1 : Recovery controlled		[0010]=Heating recovery control [0001]=Cooling recovery control
	B5	Instantaneous electric power	X1/10	W	[0090]=900W
	B6	Integrated electric power consumption	X1/100	Wh	[0090]=9000Wh
	B8	Termination resistance setting indoor unit address display	9999 : No setting 1～ : Setting address		[9999]=Case where no terminating resistance is set to any of the indoor units [0048]=Termination resistance setting Indoor unit address 48
	B9	Communications protocol	0 : TCC-LINK 1 : TU2C-LINK		[0000]=TCC-LINK [0001]=TU2C-LINK
	BA	Uv line communication speed	0 : 9600 bps 1 : 19200 bps		[0000]=9600bps [0001]=19200bps
	BB	Demand control	0 : Normally 1 : Demand control		[0000]=Normally [0001]=Demand control

*1 Only a part of indoor unit types is installed with the discharge air temperature sensor. This temperature is not displayed for other types.
*2 When the units are connected to a group, data of the header indoor unit only can be displayed.
*3 The first digit of code No. indicates the outdoor unit number.
*4 The upper digit of code No. -5 indicates the outdoor unit number.
1＊, 6＊ ... U1 outdoor unit (Header unit)
2＊, 7＊ ... U2 outdoor unit (Follower unit 1)
3＊, 8＊ ... U3 outdoor unit (Follower unit 2)
4＊, 9＊ ... U4 outdoor unit (Follower unit 3)
5＊, A＊ ... U5 outdoor unit (Follower unit 4)
*5 Only the Code No. "B＊" of U1 outdoor unit (Header unit) is displayed.

7-8. Wave Tool Advance

7-8-1. Before the Use of Wave Tool Advance

Wave tool Advance (WTA) is an application for the Android OS or iOS smartphone.
You can use this application to check system capacity, to make a test operation, to get a test operation result, and to make a simple report.

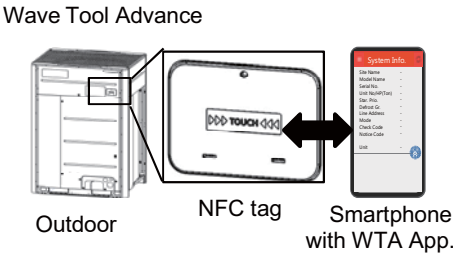
Please move to the following URL(or QR code), and confirm
"Objective product list" and "Smartphone model & OS Version".
After confirmation, download/install the Wave Tool Advance application (WTA app.) and USER GUIDE.
Be sure to read the USER GUIDE before the use of this application.

<Wave Tool Advance Support URL>
https://www.toshiba-carrier.co.jp/global/appli/smms_wave_tool_advance/index.htm

※**Notice**
WTA app. is not supported SMMS-e series. Please use the "SMMS Wave Tool" when using the SMMS-e series.

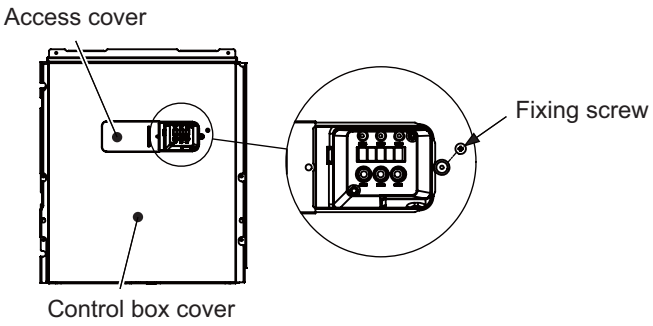
7-8-2. About Wave Tool Advance

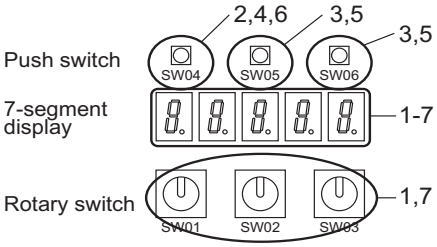
- This Application is the NFC *Near Field Communication) function of smartphone.
- When it is used, make sure that the NFC antenna on the smartphone is aligned with the "TOUCH" mark on the NFC tag.
- Refer to the USER GUIDE of the Wave Tool Advance.



7-8-3. Valid/Prohibition/Permission setting for Test operation from WTA App.

- WTA App. test operation function enable setting within 48 hours from the outdoor unit Power ON.
  If Power No time over 48 hours, it cannot use WTA App. test operation. (Other WTA App. function can use)
- You should decide whether to make use of this test operation function at its own responsibility, and also be sure to confirm notices in the Operation Manual before performing the test operation.
- If you want to prohibit the test operation from WTA App., perform the following steps.
  * High voltage parts exist in the electrical control box. If you set Switch setting.





■ Relationship with Power ON time and Test operation function.

	Status	7-segment display at O.DN Code No.05
Validness	Until 48 hours elapsed from the outdoor unit power ON, WTA App. can start a test operation. After 48 hours, it cannot.	d.␣␣␣0
Prohibition	Regardless of the elapsed time, WTA App. cannot start a test operation.	d.␣␣␣1
Permission	Regardless of the elapsed time, WTA App. can start a test operation.	d.␣␣␣2

■ For example; How to prohibit Test operation from WTA (If you need)

Steps	Items	Rotary switch			Push SW			7-segment display
		SW01	SW02	SW03	SW04	SW05	SW06	
1	Change rotary switch position for Outdoor DN code setting	9	1	1	-	-	-	dn.SEt
2	Push SW04 for activate DN code	9	1	1	Push	-	-	dn.001
3	Change DN code Number to "dn.005" with SW05 or SW06	9	1	1	-	Push	Push	dn.005
4	Change data value display with SW04 *"d.␣␣␣0" shows validness of TEST operation by WTA App. in case of the outdoor unit power ON within 48h.	9	1	1	Push	-	-	d.␣␣␣0
5	Change value to "d.␣␣␣1" with SW05 or SW06 *"d.␣␣␣1" shows prohibition of TEST operation by WTA App.	9	1	1	-	Push	Push	d.␣␣␣1
6	Push SW04 more than 2sec. 7-seg display will change from flashing to lighting.	9	1	1	Push more than 2 sec	-	-	Flashing--> d.␣␣␣1 Lighting
7	Return to default Rotary switch position.	1	1	1	-	-	-	U * ---
8	Turn ON/OFF outdoor unit main power supplies. Keep turn off time 60 seconds or more.							

* Do it again if the 7-segment display is different from the above.
* The functions other than the test operation of this application can work normally even if the test operation function are prohibited.

- Android is a trademark or registered trademark of Google LLC.
- IOS is a trademark or registered trademark of Cisco in the U.S. and other countries and is used under license.

7-8-4. Confirmation for NFC tag Communication

When you cannot read out the information of the NFC tag with your smartphone, preform the following step.

Step	Rotary switch			Push switch			7-segment display	Check result
	SW01	SW02	SW03	SW04	SW05	SW06		
1	2	16	14	—	—	—	nFc.	Normal
							nFc.Er	NFC tag wiring trouble Check NFC tag wiring
2	1	1	1				U * ---	(Return to Rotary switch)

If above check is no problem, refer to User Guide of Wave Tool Advance.

Trademark
QR code is a trademark or registered trademark of DENSO WAVE INCORPORATED.
Android is a trademark or registered of Google LLC.

8. TROUBLESHOOTING

8-1. Overview

(1) Before engaging in troubleshooting

(a) Applicable models
Super Heat Recovery Multi Advance (SHRM-A) models.
(Indoor units: MM∗-UP∗∗∗, Outdoor units: MMY-SUG****MT)

(b) Tools and measuring devices required
- Screwdrivers (Philips, flat head), spanners, long-nose pliers, nipper, pin to push reset switch, etc.
- Multimeter, thermometer, pressure gauge, etc.

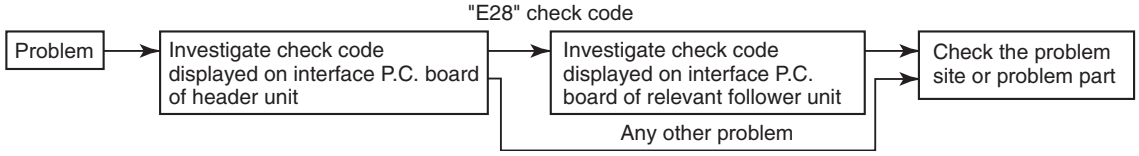
(c) Things to check prior to troubleshooting (behaviors listed below are normal)

NO.	Behavior	Possible cause
1	A compressor would not start	• The air conditioner is being controlled by the 3-minute protective function. • It is in standby status though the room temperature has reached the setup temperature. • It is being operated in timer mode or fan mode. • It is being in initial communication.
2	An indoor fan would not start	• The air conditioner is being controlled by the cool air discharge preventive function in "heating"?
3	An outdoor fan would not start or would change speed for no reason	• The air conditioner is being operated in "cooling" under the low outside air temperature. • It is being operated in defrost operation.
4	An indoor fan would not stop	• The air conditioner is being controlled by function of residual heat elimination being performed as part of the air conditioner shutdown process after heating operation.
5	The air conditioner would not respond to a start/stop command from a remote controller	• The air conditioner is being operated under external or remote control.

⚠ CAUTION

The cooling performance may be declining considerably when total operating capacity of cooling indoor units is less than 4 HP WHILE AMBIENT TEMPERATURE IS BELOW 0°C.

(2) Troubleshooting procedure
When a problem occurs, proceed with troubleshooting in accordance with the procedure shown below.



(3) If the indoor unit would not produce cool air during cooling mode / would not produce hot air during heating mode for a long period of time without displaying check code. Do the troubleshooting procedure below.

(a) Check if there's any problem with 4WV3.
(b) Check if there's a problem with PMV-D or PMV-S inside FS unit. (disconnection, coil detachment)
(c) Check if there's a problem with P.C.boards of FS unit Multi-port type. (wiring connection failure, Dip switch setting, missing P.C.board)
(d) If the problem still persist, check if there's any problem with FS unit (Proceed with FS-Unit Inspection Mode)

NOTE

Rather than a product trouble (see the List of Check Codes below), the problem could have been caused by a microprocessor malfunction attributable to a poor quality of the power source or an external noise. Check for possible noise sources, and shield the remote controller wiring and signal wires as necessary.

8-2. Troubleshooting method

The remote controllers (main remote controller and central remote controller) and the interface P.C. board of an outdoor unit have an LCD display (remote controller) or a 7-segment display (outdoor interface P.C. board) to display operational status. Using this self-diagnosis feature, the trouble site / trouble part may be identified in the event of a trouble by following the method described below.

The list below summarizes check codes detected by various devices. Analyze the check code according to where it is displayed and work out the nature of the problem in consultation with the list.

- When investigating a problem on the basis of a display provided on the indoor remote controller or central remote controller See the “Remote control or main remote controller display” section of the list.
- When investigating a problem on the basis of a display provided on an outdoor unit - See the “Outdoor 7-segment display” section of the list.
- When investigating a problem on the basis of a wireless remote controller-controlled indoor unit - See the “Light sensor indicator light block” section of the list.

List of Check Codes (Indoor Unit)

(Check code detected by indoor unit)

○ : Lighting, ◎: Flashing, ● : Goes off
ALT.: Flashing is alternately when there are two flashing LED
SIM: Simultaneous flashing when there are two flashing LED

Check code			Display of receiving unit				Typical problem site	Description of Check code
Central control or main remote controller display	Outdoor 7-segment display		Indicator light block					
		Sub-code	Operation ⏻	Timer ◴	Ready ✳	Flash		
E03	—	—	◎	●	●		Indoor-remote controller periodic communication trouble	Communication from remote controller or network adaptor has been lost (so has central control communication).
E04	—	—	●	●	◎		Indoor-outdoor periodic communication trouble	Signals are not being received from outdoor unit.
E08	E08	Duplicated indoor address	◎	●	●		Duplicated indoor address	Indoor unit detects address identical to its own.
E10	—	—	◎	●	●		Indoor inter-MCU communication trouble	MCU communication between main controller and motor microcontroller is failure.
E11	—	—	◎	●	●		Communication check code between Application control kit and indoor unit	Communication check code between Application control kit and indoor unit P.C. board.
E17	—	—	◎	●	●		Communication trouble between indoor unit (s) and FS unit (s)	There is no communication from FS unit (s)
E18	—	—	◎	●	●		Trouble in periodic communication between indoor header and follower unit	Periodic communication between indoor header and follower units cannot be maintained.
F01	—	—	◎	◎	●	ALT	Indoor heat exchanger temperature sensor (TCJ) trouble	Heat exchanger temperature sensor (TCJ) has been open/short-circuited.
F02	—	—	◎	◎	●	ALT	Indoor heat exchanger temperature sensor (TC2) trouble	Heat exchanger temperature sensor (TC2) has been open/short-circuited.
F03	—	—	◎	◎	●	ALT	Indoor heat exchanger temperature sensor (TC1) trouble	Heat exchanger temperature sensor (TC1) has been open/short-circuited.
F10	—	—	◎	◎	●	ALT	Room air temperature sensor (TA/TSA) trouble	Room air temperature sensor (TA) has been open/short-circuited.
F11	—	—	◎	◎	●	ALT	Discharge air temperature sensor (TF/TFA) trouble	Discharge air temperature sensor (TF) has been open/short-circuited.
F29	—	—	◎	◎	●	SIM	P.C. board or other indoor trouble	Open/Short-circuit of indoor air suction temperature sensor (TRA) was detected.
F30	—	—	◎	◎	○		Occupancy sensor trouble	There is no signal from Occupancy sensor
J29	—	—	●	◎	◎	SIM	Leak Detector Trouble	• There is no communication from Leak Detector • A Malfunction signal received from Leak Detector.
J30	J30	Detected indoor unit address *Not displayed depending on the DN code (I.DN) setting	●	◎	◎	SIM	Refrigerant leak detection	Leak Detector detects refrigerant leak
J31	—	—	●	◎	◎	SIM	Refrigerant leak detection sensor exceeding its life of the product	Energization time of the Leak Detector has reached its useful life.

Check code			Display of receiving unit					
Central control or main remote controller display	Outdoor 7-segment display		Indicator light block				Typical problem site	Description of Check code
		Sub-code	Operation	Timer	Ready	Flash		
L03	—	—	◎	●	◎	SIM	Duplicated indoor group header unit	There is more than one header unit in group.
L07	—	—	◎	●	◎	SIM	Connection of group control cable to stand-alone indoor unit	There is at least one stand-alone indoor unit to which group control cable is connected.
L08	L08	—	◎	●	◎	SIM	Indoor group address not set	Address setting has not been performed for one or more indoor units (also detected at outdoor unit end).
L09	—	—	◎	●	◎	SIM	Indoor capacity not set	Capacity setting has not been performed for indoor unit.
L20	—	—	◎	○	◎	SIM	Duplicated central control address	There is duplication in central control address setting.
L30	L30	Detected indoor unit No.	◎	○	◎	SIM	Indoor external trouble input (interlock)	Unit shutdown has been caused by external trouble input (CN80).
P01	—	—	●	◎	◎	ALT	Indoor AC fan trouble	Indoor AC fan trouble is detected (activation of fan motor thermal relay).
P10	P10	Detected indoor unit No.	●	◎	◎	ALT	Indoor overflow trouble	Float switch has been activated.
P12	—	—	●	◎	◎	ALT	Indoor DC fan trouble	Indoor DC fan trouble (e.g. overcurrent or lock-up) is detected.
P31	—	—	◎	●	◎	ALT	Other indoor unit trouble	Follower unit cannot be operated due to header unit alarm (E03/L03/L07/L08).

(Check code detected by remote controller)

Check code			Display of receiving unit				Typical problem site	Description of Check code
Remote control	Outdoor 7-segment display		Indicator light block					
		Sub-code	Operation	Timer	Ready	Flash		
E01	–	–	◎	●	●		No master remote control, failure remote control communication (reception)	Signals cannot be received from indoor unit; master remote controller has not been set (including two remote controller control).
E02	–	–	◎	●	●		Failure remote control communication (transmission)	Signals cannot be transmitted to indoor unit.
E09	–	–	◎	●	●		Duplicated master remote control	Both remote controllers have been set as master remote controller in two remote controller control (alarm and shutdown for header unit and continued operation for follower unit)

(Check code detected by central control device)

Check code			Display of receiving unit				Typical problem site	Description of Check code
Central control	Outdoor 7-segment display		Indicator light block					
		Sub-code	Operation	Timer	Ready	Flash		
C05	–	–	No indication (when main remote control also in use)				Failure central control communication (transmission)	Central control device is unable to transmit signal due to duplication of central control device
C06	–	–					Failure central control communication (reception)	Central control device is unable to receive signal.
C12	–	–	–				Bracket alarm for general-purpose device control interface	Device connected to general-purpose device control interface is failure.
P30	–	–	As per alarm unit (see above)				Group control follower unit trouble	Group follower unit is troubled (unit No. and above detail [＊＊＊] displayed on main remote controller)
S01	–	–	–				Failure central control communication (reception)	Central control device is unable to receive signal.

Note: The same trouble, e.g. a communication trouble, may result in the display of different check codes depending on the device that detects it.
Moreover, check codes detected by the main remote controller/central control device do not necessarily have a direct impact on air conditioner operation.

Flow selector unit (FS unit) Relation

(Check code detected by indoor unit or outdoor unit)

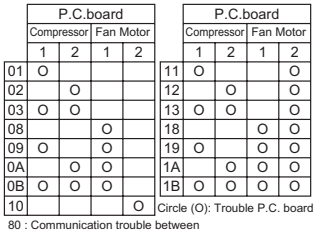
Check code			Display of receiving unit				Typical problem site	Description of Check code
Main remote control	Outdoor 7-segment display		Indicator light block					
		Sub-code	Operation	Timer	Ready	Flash		
E17	–	–	◎	●	●		Communication trouble between indoor unit (s) and FS unit (s)	There is no communication from FS unit(s)
J01	–	–	●	◎	◎	SIM	Communication trouble between indoor unit (s) and FS unit (s)	There is no communication from indoor unit (s)
J02	–	–	●	◎	◎	SIM	Communication trouble between control boards in FS unit	Communication trouble between PC boards of multiport type FS unit.
J03	–	–	●	◎	◎		Duplicated FS units	More than one FS units have been set up in one refrigerant line.

List of Check Codes (Outdoor Unit)

(Check code detected by outdoor interface - typical examples)

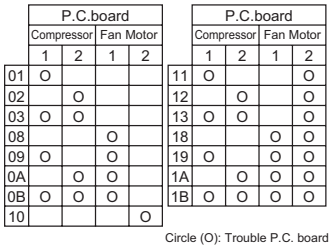
If "HELLO" is displayed on the outdoor 7-segment for 1 minute or more, turn off the power supply once and then turn on the power supply again after passage of 30 seconds or more. When the same symptom appears, it is considered there is a possibility of I/F board trouble.

◯ : Lighting, ◎ : Flashing, ● : Goes off
ALT.: Flashing is alternately when there are two flashing LED
SIM: Simultaneous flashing when there are two flashing LED

Check code			Display of receiving unit				Typical problem site	Description of Check code
Outdoor 7-segment display		Central control or main remote controller display	Indicator light block					
	Sub-code		Operation ⏻	Timer 🕘	Ready ❋	Flash		
E06	–	E06	●	●	◎		Signal lack of indoor unit	• Indoor unit initially communicating normally fails to return signal (reduction in number of indoor units connected). • In TU2C-LINK communication system, if the termination resistance is not set in any of the indoor units • The number of indoor units connected is decreasing. (detected when power is turned on)
E07	–	(E04)	●	●	◎		Indoor-outdoor communication circuit trouble	Signal cannot be transmitted to indoor units (→ indoor units left without communication from outdoor unit).
E08	Duplicated indoor address	(E08)	◎	●	●		Duplicated indoor address	More than one indoor unit are assigned same address (also detected at indoor unit end).
E12	01: Indoor-outdoor communication 02: Outdoor-outdoor communication	E12	◎	●	●		Automatic address starting trouble	• Indoor automatic address setting is started while automatic address setting for equipment in other refrigerant line is in progress. • Outdoor automatic address setting is started while automatic address setting for indoor units is in progress.
E15	–	E15	●	●	◎		Indoor unit not found during automatic address setting	Indoor unit fails to communicate while automatic address setting for indoor units is in progress.
E16	00: Capacity over 01: Number of units connected	E16	●	●	◎		Too many indoor units connected/capacity over	Combined capacity of indoor units is too large. The maximum combined of indoor units shown in the specification table.
E19	00: No header unit 02: Two or more header units	E19	●	●	◎		Trouble in number of outdoor header units	There is no or more than one outdoor header unit in one refrigerant line.
E20	01: Connection of outdoor unit from other refrigerant line 02: Connection of indoor unit from other refrigerant line	E20	●	●	◎		Connection to other refrigerant line found during automatic address setting	Indoor unit from other refrigerant line is detected while indoor automatic address setting is in progress.
E23	–	E23	●	●	◎		Outdoor-outdoor communication transmission trouble	Signal cannot be transmitted to other outdoor units.
E25	–	E25	●	●	◎		Duplicated follower outdoor address	There is duplication in outdoor addresses set manually.
E26	Address of outdoor unit from which signal is not received normally	E26	●	●	◎		Signal lack of outdoor unit	Follower outdoor unit initially communicating normally fails to do so (reduction in number of follower outdoor units connected).
E28	Detected outdoor unit No.	E28	●	●	◎		Outdoor follower unit trouble	Outdoor header unit detects trouble relating to follower outdoor unit (detail displayed on follower outdoor unit).
E31	 80 : Communication trouble between MCU and Sub MCU	E31	●	●	◎		P.C. board communication trouble Sub MCU communication trouble	There is no communication between P.C. boards in inverter box.
F04	–	F04	◎	◎	◯	ALT	Outdoor discharge temperature sensor (TD1) trouble	Outdoor discharge temperature sensor (TD1) has been open/short-circuited.
F05	–	F05	◎	◎	◯	ALT	Outdoor discharge temperature sensor (TD2) trouble	Outdoor discharge temperature sensor (TD2) has been open/short-circuited.
F06	01: TE1 sensor 02: TE2 sensor 03: TE3 sensor	F06	◎	◎	◯	ALT	Outdoor heat exchanger liquid side temperature sensor (TE1, TE2, TE3) trouble	Outdoor heat exchanger liquid side temperature sensors (TE1, TE2, TE3) have been open/short-circuited.
F07	01: TL1 sensor 02: TL2 sensor 03: TL3 sensor	F07	◎	◎	◯	ALT	Outdoor liquid temperature sensor (TL1,TL2,TL3) trouble	Outdoor liquid temperature sensor (TL1,TL2,TL3) has been open/short-circuited.
F08	–	F08	◎	◎	◯	ALT	Outdoor outside air temperature sensor (TO) trouble	Outdoor air temperature sensor (TO) has been open/short-circuited.
F09	01: TG1 sensor 02: TG2 sensor 03: TG3 sensor	F09	◎	◎	◯	ALT	Outdoor heat exchanger gas side temperature sensor (TG1, TG2, TG3) trouble	Outdoor heat exchanger gas side temperature sensors (TG1, TG2, TG3) have been open/short-circuited.

Check code			Display of receiving unit				Typical problem site	Description of Check code
Outdoor 7-segment display		Central control or main remote controller display	Indicator light block					
	Sub-code		Operation ⏻	Timer 🕘	Ready ❁	Flash		
F12	01: TS1 sensor 02: TS2 sensor 03: TS3 sensor	F12	◎	◎	○	ALT	• Outdoor suction temperature sensor (TS1,TS2,TS3) trouble • When TS3 detects an unusual temperature during compressor operation and PMV4 operation in cooling mode	• Outdoor suction temperature sensor (TS1, TS2, TS3) has been open/short-circuited.
F15	–	F15	◎	◎	○	ALT	Outdoor temperature sensor (TE1,TL1) wiring trouble	Wiring trouble in outdoor temperature sensors (TE1,TL1) has been detected.
F16	–	F16	◎	◎	○	ALT	Outdoor pressure sensor (Pd, Ps) wiring trouble	Wiring trouble in outdoor pressure sensors (Pd, Ps) has been detected.
F23	–	F23	◎	◎	○	ALT	Low pressure sensor (Ps) trouble	Output voltage of low pressure sensor (Ps) is zero.
F24	–	F24	◎	◎	○	ALT	High pressure sensor (Pd) trouble	Output voltage of high pressure sensor (Pd) is zero or provides abnormal readings when compressors have been turned off.
F31	–	F31	◎	◎	○	SIM	Outdoor EEPROM trouble	Outdoor EEPROM is failure (alarm and shutdown for header unit and continued operation for follower unit)
H05	–	H05	●	◎	●		Outdoor discharge temperature sensor (TD1) wiring trouble	Wiring/installation trouble or detachment of outdoor discharge temperature sensor (TD1) has been detected.
H06	–	H06	●	◎	●		Activation of low-pressure protection	Low pressure (Ps) sensor detects abnormally low operating pressure.
H07	–	H07	●	◎	●		Low oil level protection	Temperature sensor for oil level detection (TK1,TK2) detects abnormally low oil level.
H08	01: TK1 sensor trouble 02: TK2 sensor trouble	H08	●	◎	●		Trouble in temperature sensor for oil level detection (TK1,TK2)	Temperature sensor for oil level detection (TK1,TK2) has been open/short-circuited.
H15	–	H15	●	◎	●		Outdoor discharge temperature sensor (TD2) wiring trouble	Wiring/installation trouble or detachment of outdoor discharge temperature sensor (TD2) has been detected.
H16	01: TK1 oil circuit trouble 02: TK2 oil circuit trouble	H16	●	◎	●		Oil level detection circuit trouble	No temperature change is detected by temperature sensor for oil level detection (TK1,TK2) despite compressor having been started.
L02	Detected indoor unit address	L02	◎	●	◎	SIM	Indoor unit incompatible with A2L refrigerant	• Indoor unit incompatible with TU2C-Link is connected. • Indoor unit incompatible with R32 is connected.
L04	–	L04	◎	●	◎	SIM	Duplicated outdoor refrigerant line address	Identical refrigerant line address has been assigned to outdoor units belonging to different refrigerant piping system.
L06	Number of priority indoor units (check code L05 or L06 depending on individual unit)	L05	◎	●	◎	SIM	Duplicated priority indoor unit (as displayed on priority indoor unit)	More than one indoor unit have been set up as priority indoor unit.
		L06	◎	●	◎	SIM	Duplicated priority indoor unit (as displayed on indoor unit other than priority indoor unit)	More than one indoor unit have been set up as priority indoor unit.
L08	–	(L08)	◎	●	◎	SIM	Indoor group address not set	Address setting have not been performed for one or more indoor units (also detected at indoor end).
L10		L10	◎	○	◎	SIM	Outdoor capacity not set	Outdoor unit capacity has not been set (after P.C.board replacement.)
L11	Detected indoor unit address		◎	○	◎	SIM	FS unit or Shut-off Valve unit installation trouble	• Outdoor unit is set to "HR" there is no connection to Flow Selector unit, and indoor unit is not set to "cooling only". • Outdoor unit is set to "HP" and the FS unit is connected.

Check code			Display of receiving unit				Typical problem site	Description of Check code
Outdoor 7-segment display		Central control or main remote controller display	Indicator light block					
	Sub-code		Operation	Timer	Ready	Flash		
L13	Detected indoor unit address		◎	○	◎	SIM	Safety measures setting unlatch	• Safety measures setting of indoor unit connected to same FS unit (or SV unit) is mismatched. • No indoor unit is connected to No.1 port of FS unit Multi-port type. • A number that is one larger than the port address of the indoor unit for which "combining branches" is set. (Example; If the port address of the indoor unit for which "combining branches" is set to 3, 4 must not be set) • Multiple remote controller groups are set to one port of the FS unit, and different port address is set for one of the groups. • Same address is set for different FS units.
L14	Detected indoor unit address		◎	○	◎	SIM	Safety measures nonconformity	• Safety measures setting is set other than "no safety measures" and Leak Detector is not connected. (Detected when power is turned on.) • Safety measures setting is set to "Pump-down operation" or "Individual shut-off operation" and FS unit or SV unit is not connected. • Safety measures setting is set to "Individual shut-off operation" and connected to FS unit Multi-port type.
L17	–	L17	◎	○	◎	SIM	Outdoor model incompatibility trouble	Outdoor unit that cannot be connected is connected.
L23	02: Switch setting trouble of outdoor unit	L23	◎	○	◎	SIM	SW setting trouble	Switch setting trouble of outdoor units when HWM (Hot water module) is connected.
L24	02: Indoor units operation mode priority setting	L24	◎	○	◎	SIM	FS unit (S) setting trouble	Duplicated priority indoor units operation mode.
L28	Number of connected outdoor units	L28	◎	○	◎	SIM	Too many outdoor units connected	More than six outdoor units have been connected.

Check code		Central control or main remote controller display	Display of receiving unit				Typical problem site	Description of Check code
Outdoor 7-segment display			Indicator light block					
	Sub-code		Operation	Timer	Ready	Flash		
L29	 Circle (O): Trouble P.C. board	L29	◎	○	◎	SIM	Trouble in number of P.C. boards	There are insufficient number of P.C. board in inverter box.
	00	L29	◎	○	◎	SIM	The number of P.C. board trouble	When there is much number of an inverter P.C. board to model setting of an interface P.C. board.
L30	Detected indoor unit No.	(L30)	◎	○	◎	SIM	Indoor external trouble input (interlock)	Indoor unit has been shut down for external trouble input in one refrigerant line (detected by indoor unit).
P03	–	P03	◎	●	◎	ALT	Outdoor discharge (TD1) temperature trouble	Outdoor discharge temperature sensor (TD1) has detected abnormally high temperature.
P04	01: Compressor 1 02: Compressor 2	P04	◎	●	◎	ALT	Activation of high-pressure SW	High-pressure SW is activated.
P05	00: Power detection trouble 01: Open phase 02: Power supply miswiring	P05	◎	●	◎	ALT	Power detection trouble /Open phase detection /Power supply miswiring detection	Open phase is detected when power is turned on. Miswiring (ex: reverse connection of L1 and N) is detected when power is turned on.
P07	00 : Compressor 1 or 2 heat sink trouble 01 : Compressor 1 heat sink trouble 02 : Compressor 2 heat sink trouble	P07	◎	●	◎	ALT	Heat sink overheating trouble	Temperature sensor built into IPM (TH) detects overheating.
	04: Heat sink dewing						Heat sink dewing trouble	Outdoor liquid temperature sensor (TL2) has detected abnormally low temperature.
P10	Indoor unit No. detected	(P10)	●	◎	◎	ALT	Indoor unit overflow	Indoor unit has been shutdown in one refrigerant line due to detection of overflow (detected by indoor unit).
P11	–	P11	●	◎	◎	ALT	Outdoor heat exchanger freeze trouble	Remaining frost on outdoor heat exchanger has been detected repeatedly.
P13	–	P13	●	◎	◎	ALT	Outdoor liquid backflow detection trouble	State of refrigerant cycle circuit indicates liquid backflow operation.
P14	01: Outdoor unit valve is close	P14	●	◎	◎	ALT	Another refrigerant cycle protection	Outdoor unit valve is forget to open during test run.
P15	01: TS condition 02: TD condition	P15	◎	●	◎	ALT	Gas leak detection	Outdoor suction temperature sensor (TS1) detects sustained and repeated high temperatures that exceed standard value.
P16	01: PMV5 02: PMV6 03: Misinstalltion of PMV5 and PMV6	P16	◎	●	◎	ALT	Injection circuit trouble	• Discharge temperature of either comp 1 or comp 2 is within the normal control range. and discharge temperature of the other is very low. • Discharge temperature of either comp 1 or comp 2 is very high. and discharge temperature of the other is very low.
P17	–	P17	◎	●	◎	ALT	Outdoor discharge (TD2) temperature trouble	Outdoor discharge temperature sensor (TD2) detects abnormally high temperature.
P19	0# : 4-way valves 1# : 4-way valve1 2# : 4-way valve2 *Put in outdoor unit No. in [#] mark.	P19	◎	●	◎	ALT	4-way valve reversing trouble	• Abnormality in refrigerating cycle is detected during heating operation. • Either 4WV1 or 4WV2 cannot be switched.
P20	–	P20	◎	●	◎	ALT	Activation of high-pressure protection	High pressure (Pd) sensor detects high pressure that exceeds standard value.

(Check code detected by Inverter of Compressor featuring in outdoor unit - typical examples)

Check code			Display of receiving unit				Typical problem site	Description of Check code
Outdoor 7-segment display		Central control or main remote controller display	Indicator light block					
	Sub-code		Operation ⏻	Timer ◴	Ready ✺	Flash		
F13	1∗: Compressor 1 2∗: Compressor 2	F13	◎	◎	○	ALT	Trouble in temperature sensor built into indoor IPM (TH)	Temperature sensor built into indoor IPM (TH) has been open/short-circuited.
H01	1∗: Compressor 1 2∗: Compressor 2	H01	●	◎	●		Compressor breakdown	Inverter current (Idc) detection circuit detects overcurrent.
H02	1∗: Compressor 1 2∗: Compressor 2	H02	●	◎	●		Compressor trouble (lockup)	Compressor lockup is detected
H03	1∗: Compressor 1 2∗: Compressor 2	H03	●	◎	●		Current detection circuit trouble	Abnormal current is detected while inverter compressor is turned off.
H17	1∗: Compressor 1 2∗: Compressor 2	H17	●	◎	●		Compressor trouble (Step out)	Compressor is in step-out condition.
H28	1∗: Compressor 1 2∗: Compressor 2	H28	●	◎	●		Compressor motor winding trouble	Compressor motor winding is layer shorted.
P05	1∗: Compressor 1 side 2∗: Compressor 2 side	P05	◎	●	◎	ALT	Compressor Vdc trouble	Inverter DC voltage is too high (over voltage) or too low (under voltage).
P07	1∗: Compressor 1 side 2∗: Compressor 2 side	P07	◎	●	◎	ALT	Heat sink overheat trouble	Temperature sensor built into IPM (TH) detects overheating.
P22	1∗: Fan P.C. board 1 2∗: Fan P.C. board 2	P22	◎	●	◎	ALT	Outdoor fan P.C. board trouble	Outdoor fan P.C. board detects trouble.
P25	1∗: Compressor P.C.board 1 2∗: Compressor P.C.board 2	P25	◎	●	◎	ALT	Compressor P.C.board trouble	IPM for compressor is broken. (short-circuit etc.)
P26	1∗: Compressor 1 2∗: Compressor 2	P26	◎	●	◎	ALT	Compressor start up trouble	Open phase or IPM over current for compressor is detected.
P29	1∗: Compressor 1 2∗: Compressor 2	P29	◎	●	◎	ALT	Compressor position detection circuit trouble	Compressor motor position detection trouble is detected.

Note: The above check codes are examples only, and different check codes may be displayed depending on the outdoor unit configuration

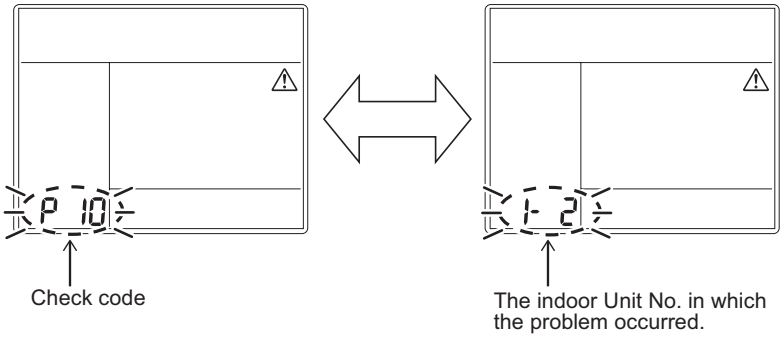
8-3. Troubleshooting based on information displayed on remote controller

Using main remote controller (RBC-ASCU11*)

<RBC-ASCU11*>

(1) Confirmation and check

If a problem occurs with the air conditioner, the OFF timer indicator alternately shows the check code and the indoor Unit No. in which the problem occurred.

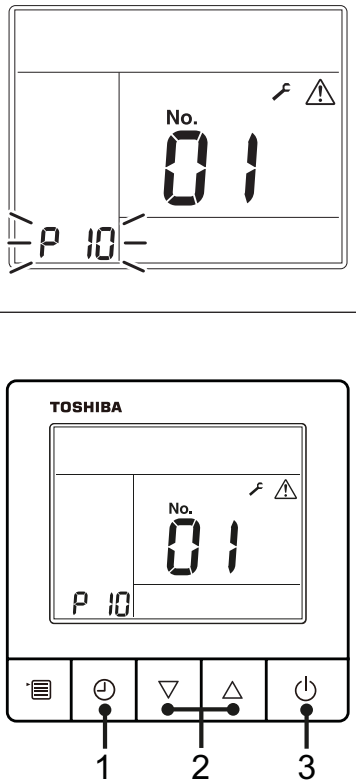


(2) Troubleshooting history and confirmation

You can check the troubleshooting history with the following procedure if a problem occurs with the air conditioner.
(The troubleshooting history records up to 4 incidents.)
You can check it during operation or when operation is stopped.

- If you check the troubleshooting history during OFF timer operation, the OFF timer will be canceled.

Procedure	Description of operation
1	Push the OFF timer button for over 10 seconds and the indicators appear as an image indicating the troubleshooting history mode has been entered. If [Service check] is displayed, the mode enters in the troubleshooting history mode. • [01: Order of troubleshooting history] appears in the temperature indicator. • The OFF timer indicator alternately shows the [check code] and the [indoor Unit No.] in which the problem occurred.
2	Each time the setting button is pushed, the recorded troubleshooting history is displayed in sequence. The troubleshooting history appears in order from [01] (newest) to [04] (oldest). **⚠ CAUTION** In the troubleshooting history mode, DO NOT push the Menu button for over 10 seconds, doing so deletes the entire troubleshooting history of the indoor unit.
3	After you have finished checking, push the ON/OFF button to return to the regular mode. • If the air conditioner is operating, it remains operated even after the ON/OFF button has been pushed. To stop its operation, push the ON/OFF button again.



How to read displayed information

<7-segment display symbols>

0 1 2 3 4 5 6 7 8 9 A b C d E F H J L P

<Corresponding alphanumerical letters>

0 1 2 3 4 5 6 7 8 9 A b C d E F H J L P

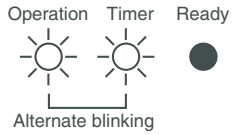
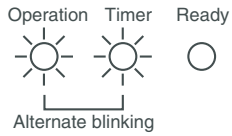
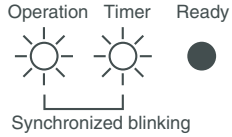
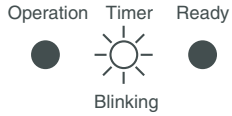
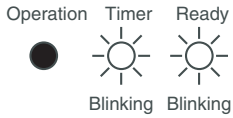
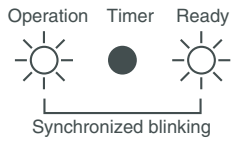
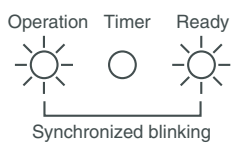
Using indoor unit indicators (receiving unit light block) (wireless type)

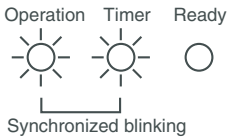
To identify the check code, check the 7-segment display on the outdoor unit. To check for check codes not displayed on the 7-segment display, consult the “List of Check Codes (Indoor Unit)” in “8-2. Troubleshooting method”.

● : Goes off ○ : Lighting ☼ : Blinking (0.5 seconds)

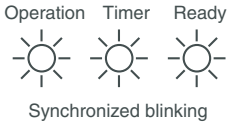
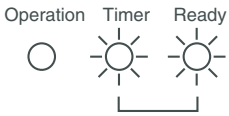
Light block	Check code	Cause of trouble		
Operation ● Timer ● Ready ● All lights out	–	Power turned off or trouble in wiring between receiving and indoor units		
Operation ☼ Timer ● Ready ● Blinking	E01	Trouble reception	Receiving unit	Trouble or poor contact in wiring between receiving unit and indoor units
	E02	Trouble transmission		
	E03	Loss of communication		
	E08	Duplicated indoor unit No. (address)		Setting trouble
	E09	Duplicated master remote controller		
	E10	Communication trouble between indoor unit MCU		
	E11	Communication trouble between Application control kit and indoor unit P.C. board		
	E12	Automatic address starting trouble		
	E17	Communication trouble between indoor unit(s) and FS unit(s)		
	E18	Trouble or poor contact in wiring between indoor units, indoor power turned off		
Operation ● Timer ● Ready ☼ Blinking	E04	Trouble or poor contact in wiring between indoor and outdoor units (loss of indoor-outdoor communication)		
	E06	Trouble reception in indoor-outdoor communication (dropping out of indoor unit)		
	E07	Trouble transmission in indoor-outdoor communication		
	E15	Indoor unit not found during automatic address setting		
	E16	Injection circuit trouble		
	E19	Trouble in number of outdoor header units		
	E20	Detection of refrigerant piping communication trouble during automatic address setting		
	E23	Trouble transmission in outdoor-outdoor communication		
	E25	Compressor P.C. board trouble		
	E26	Trouble reception in outdoor-outdoor communication, dropping out of outdoor unit		
	E28	Outdoor follower unit trouble		
	E31	P.C. board communication trouble		
Operation ● Timer ☼ Ready ☼ Alternate blinking	P01	Indoor AC fan trouble		
	P10	Indoor overflow trouble		
	P11	Outdoor heat exchanger freezing trouble		
	P12	Indoor DC fan trouble		
	P13	Outdoor liquid backflow detection trouble		
	P14	Outdoor unit valve is closed		
Operation ☼ Timer ● Ready ☼ Alternate blinking	P03	Outdoor discharge (TD1) temperature trouble		
	P04	Activation of outdoor high-pressure SW		
	P05	Open phase / power failure / Miswiring of power Inverter DC voltage (Vdc) trouble MG-CTT trouble		
	P07	Outdoor heat sink overheating trouble - Poor cooling of electrical component (IGBT) of outdoor unit		
	P15	Gas leak detection - insufficient refrigerant charging		
	P16	Injection circuit trouble		
	P17	Outdoor discharge (TD2) temperature trouble		
	P18	Outdoor discharge (TD3) temperature trouble		
	P19	Outdoor 4-way valve reversing trouble		
	P20	Activation of high-pressure protection		
	P22	Outdoor fan P.C. board trouble		
	P25	Compressor P.C. board trouble		
	P26	Compressor trouble / Wire connection trouble Compressor leads trouble Compressor P.C. board trouble		
	P29	Compressor position detection circuit trouble		
	P31	Shutdown of other indoor unit in group due to trouble (group follower unit trouble)		

MG-CTT: Magnet contactor

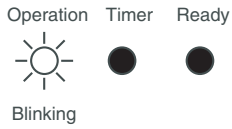
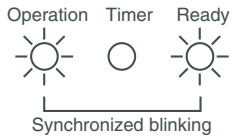
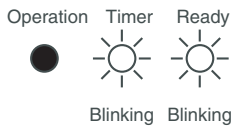
Light block	Check code	Cause of trouble	
	F01	Heat exchanger temperature sensor (TCJ) trouble	Indoor unit temperature sensor trouble
	F02	Heat exchanger temperature sensor (TC2) trouble	
	F03	Heat exchanger temperature sensor (TC1) trouble	
	F10	Ambient temperature sensor (TA/TSA) trouble	
	F11	Discharge temperature sensor (TF) trouble	
	F04	Discharge temperature sensor (TD1) trouble	Outdoor unit temperature sensor trouble
	F05	Discharge temperature sensor (TD2) trouble	
	F06	Heat exchanger temperature sensor (TE1, TE2, TE3) trouble	
	F07	Liquid temperature sensor (TL1, TL2, TL3) trouble	
	F08	Outside air temperature sensor (TO) trouble	
	F09	Heat exchanger gas side temperature sensor (TG1, TG2, TG3) trouble	
	F12	Suction temperature sensor (TS1, TS2, TS3) trouble	
	F13	Heat sink sensor (TH) trouble	
	F15	Wiring trouble in heat exchanger sensor (TE1) and liquid temperature sensor (TL) Outdoor unit temperature sensor wiring / installation trouble	
	F16	Wiring trouble in outdoor high pressure sensor (Pd) and low pressure sensor (Ps) Outdoor pressure sensor wiring trouble	
	F23	Low pressure sensor (Ps) trouble	Outdoor unit pressure sensor trouble
	F24	High pressure sensor (Pd) trouble	
	F29	Trouble in indoor EEPROM	
	H01	Compressor breakdown	Outdoor unit compressor related trouble
	H02	Compressor lockup	
	H03	Current detection circuit trouble	
	H05	Wiring / installation trouble or detachment of outdoor discharge temperature sensor (TD1)	
	H06	Abnormal drop in low-pressure sensor (Ps) reading	Protective shutdown of outdoor unit
	H07	Abnormal drop in oil level	
	H08	Trouble in temperature sensor for oil level detection circuit (TK1, TK2)	
	H15	Wiring / installation trouble or detachment of outdoor discharge temperature sensor (TD2)	
	H16	Oil level detection circuit trouble - Trouble in outdoor unit TK1, TK2 circuit	
	H17	Compressor trouble (Step-out)	
	H28	Compressor motor winding trouble	
	J29	Leak Detector trouble	
	J30	Refrigerant leak detection	
	J31	Refrigerant leak detection sensor has reached product life	
	L02	Outdoor unit model mismatched trouble	
	L03	Duplicated indoor group header unit	
	L05	Duplicated priority indoor unit (as displayed on priority indoor unit)	
	L06	Duplicated priority indoor unit (as displayed on indoor unit other than priority indoor unit)	
	L07	Connection of group control cable to stand-alone indoor unit	
	L08	Indoor group address not set	
	L09	Indoor capacity not set	
	L04	Duplicated outdoor refrigerant line address	
	L10	Outdoor capacity not set	
	L11	FS unit or Shut-off Valve unit installation trouble	
	L13	Safety measures setting unmatched	
	L14	Safety measures nonconformity	
	L17	Outdoor model incompatibility trouble	
	L20	Duplicated central control address	
	L23	SW setting trouble	
	L24	FS unit(s) setting trouble	
	L28	Too many outdoor units connected	
	L29	Trouble in number of P.C. boards	
	L30	Indoor external interlock trouble	

Light block	Check code	Cause of trouble
	F30	Occupancy sensor trouble
	F31	Outdoor EEPROM trouble

Other (indications not involving check code)

Light block	Check code	Cause of trouble
	–	Test run in progress
	–	Setting incompatibility (automatic cooling / heating setting for model incapable of it and heating setting for cooling-only model)

Flow selector unit (FS unit) Relation

Light block	Check code	Cause of trouble
	E17	Communication trouble between indoor unit(s) and FS unit(s)
	L24	FS unit(s) setting trouble
	J01	Communication trouble between indoor unit(s) and FS unit
	J02	Communication trouble between control boards in FS unit
	J03	Duplicated FS units

8-4. Check Codes list

For other types of outdoor units, refer to their own service manuals.

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Controller	Outdoor 7-segment display						
	Check code	Sub-code					
C05	—		Central control device	Central control device transmission trouble	Continued operation	Central control device is unable to transmit signal.	• Check for failure in central control device. • Check for failure in central control communication line. • Check termination resistance setting.
C06	—		Central control device	Central control device reception trouble	Continued operation	Central control device is unable to receive signal.	• Check for failure in central control device. • Check for failure in central control communication line. • Check terminator resistor setting. • Check power supply for devices at other end of central control communication line. • Check failure in P.C. boards of devices at other end of central control communication line.
C12	—		General-purpose device I/F	Batch alarm for general-purpose device control interface	Continued operation	Trouble signal is input to control interface for general-purpose devices.	• Check trouble input.
E01	—	—	Remote controller	Indoor-remote controller communication trouble (detected at remote controller end)	Stop of corresponding unit	Communication between indoor P.C. board and remote controller is disrupted.	• Check remote controller inter-unit tie cable (A/B). • Check for broken wire or connector bad contact. • Check indoor power supply. • Check for failure in indoor P.C. board. • Check remote controller address settings (when two remote controllers are in use). • Check remote controller P.C. board.
E02	—	—	Remote controller	Remote controller transmission trouble	Stop of corresponding unit	Signal cannot be transmitted from remote controller to indoor unit.	• Check internal transmission circuit of remote controller. --- Replace remote controller as necessary.
E03	—	—	Indoor unit	Indoor-remote controller communication trouble (detected at	Stop of corresponding unit	There is no communication from remote controller (including wireless) or network adaptor.	• Check remote controller and network adaptor wiring.

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Controller	Outdoor 7-segment display						
	Check code	Sub-code					
E04	—	—	Indoor unit	Indoor-outdoor communication circuit trouble (detected at indoor end)	Stop of corresponding unit	Indoor unit is not receiving signal from outdoor unit.	• Check order in which power was turned on for indoor unit and outdoor unit. • Check indoor address setting. • Check communication wiring between indoor unit and outdoor unit. • Check outdoor unit termination resistor setting (SW100, Bit 2)
(Depending on indoor unit status)	E06	00	I/F	Dropping out of indoor unit	All stop	All indoor unit initially communicating normally fails to return signal for specified length of time.	• Check power supply to indoor unit. (Is power turned on?) • Check communication wiring between indoor unit and outdoor unit. • Check connection of communication connectors on indoor unit P.C.board. • Check for failure indoor unit P.C.board. • Check for failure in outdoor unit P.C.board (I/F) • Check indoor unit termination resistor setting.
(Depending on indoor unit status)		—	I/F	Dropping out of indoor unit	Stop of corresponding unit	One or more Indoor unit initially communicating normally fails to return signal for specified length of time.	
					All stop	**Condition 1** Number of connected indoor units has decreased. (detected when power is turned on) **Condition 2** One or more Hot Water Module initially communicating normally fails to return signal for specified length of time.	
(Depending on indoor unit status)		—	I/F	Indoor unit termination resistor setting trouble	All stop	Termination resistor is not set in any indoor unit.	
—	E07	—	I/F	Indoor-outdoor communication circuit trouble (detected at outdoor end)	All stop	Signal cannot be transmitted from outdoor to indoor units for 30 seconds continuously.	• Check outdoor terminator resistor setting (SW100, Bit 2). • Check connection of indoor-outdoor communication circuit.
E08	E08	Duplicated indoor address	Indoor unit I/F	Duplicated indoor address	All stop	More than one indoor unit are assigned same address.	• Check indoor addresses. • Check for any change made to remote controller connection (group/ individual) since indoor address setting.

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Controller	Outdoor 7-segment display						
	Check code	Sub-code					
E09	—	—	Remote controller	Duplicated master remote controller	Stop of corresponding unit	In two remote controller configuration (including wireless), both controllers are set up as master. (Header indoor unit is shut down with alarm, while follower indoor units continue operating.)	• Check remote controller settings. • Check remote controller P.C.boards. • Check if FS units are connected by communication line. (Do not connect FS unit to another FS unit with a communication line.)
E10	—	—	Indoor unit	Indoor inter-MCU communication trouble	Stop of corresponding unit	Communication cannot be established/maintained upon turning on of power or during communication.	• Check for failure in indoor P.C. board
E12	E12	01: Indoor-outdoor communication 02: Outdoor-outdoor communication	I/F	Automatic address starting trouble	All stop	• Indoor automatic address setting is started while automatic address setting for equipment in other refrigerant line is in progress. • Outdoor automatic address setting is started while automatic address setting for indoor units is in progress.	• Check whether the outdoor unit of other systems or the indoor unit is connected to Uv (U1/U2) line or Uc (U5/U6) line. • Perform automatic address setting again after disconnecting communication cable to that refrigerant line.
E15	E15	—	I/F	Indoor unit not found during automatic address setting	All stop	Indoor unit cannot be detected after indoor automatic address setting is started.	• Check connection of indoor-outdoor communication line. • Check for trouble in indoor power supply system. • Check for noise from other devices. • Check for power failure. • Check for failure in indoor P.C. board.
E16	E16	00: Capacity over 01-: No. of units connected	I/F	Too many indoor units connected	All stop	• Combined capacity of indoor units is too large. **Note:** **If this code comes up after backup setting for outdoor unit failure is performed, perform "No capacity over detected" setting.** <"No capacity over detected" setting method> Turn on SW103 / Bit 3 on I/F P.C. board of outdoor header unit. For Cooling Only model, this check code is not displayed even if it exceeds the combined capacity of indoor units. • More than 128 indoor units are connected.	• Check capacities of indoor units connected. • Check combined HP capacities of indoor units. • Check HP capacity settings of outdoor units. • Check No. of indoor units connected. • Check for failure in outdoor P.C. board (I/F).
E17	—	—	Indoor unit	communication trouble between indoor unit(s) and FS unit(s)	Stop of corresponding units(s)	There is no communication from FS unit(s)	• Check order in which power was turned on. • Check indoor unit(s) - FS unit(s) cable • Check FS unit port address setting of indoor unit.
E18	—	—	Indoor unit	Trouble in communication between indoor header and follower units	Stop of corresponding unit	Periodic communication between indoor header and follower units cannot be maintained.	• Check remote controller wiring. • Check indoor power supply wiring. • Check P.C. boards of indoor units.
E19	E19	00: No header unit 02: Two or more header units	I/F	Trouble in number of outdoor header units	All stop	• There are more than one outdoor header units in one line. • There is no outdoor header unit in one line.	Turned on SW101 bit 1 of I/F P.C.board • Check SW101 bit 1 of outdoor unit. • Check communication line between outdoor units. • Check for failure in outdoor P.C.board (I/F).
E20	E20	01: Connection of outdoor unit from other line 02: Connection of indoor unit from other line	I/F	Connection to other line found during automatic address setting	All stop	Equipment from other line is found to have been connected when indoor automatic address setting is in progress.	Check whether the outdoor unit of other systems or the indoor unit is connected to Uv (U1/U2) line or Uc (U5/U6) line.

<table>
<tr><th colspan="3">Check code</th><th rowspan="3">Location of detection</th><th rowspan="3">Description</th><th rowspan="3">System status</th><th rowspan="3">Check code detection condition(s)</th><th rowspan="3">Check items (locations)</th></tr>
<tr><th rowspan="2">Controller</th><th colspan="2">Outdoor 7-segment display</th></tr>
<tr><th>Check code</th><th>Sub-code</th></tr>
<tr><td>E23</td><td>E23</td><td>—</td><td>I/F</td><td>Outdoor-outdoor communication transmission trouble</td><td>All stop</td><td>Signal cannot be transmitted to other outdoor units for at least 30 seconds continuously.</td><td>• Check power supply to outdoor units. (Is power turned on?)
• Check connection of tie cables between outdoor units for bad contact or broken wire.
• Check communication connectors on outdoor P.C. boards.
• Check for failure in outdoor P.C. board (I/F).
• Check termination resistance setting for communication between outdoor units.</td></tr>
<tr><td>E25</td><td>E25</td><td>—</td><td>I/F</td><td>Duplicated follower outdoor address</td><td>All stop</td><td>There is duplication in outdoor addresses set manually.</td><td>Note:
Do not set outdoor addresses manually.</td></tr>
<tr><td>E26</td><td>E26</td><td>Address of outdoor unit from which signal is not received normally</td><td>I/F</td><td>Signal lack of outdoor unit</td><td>All stop</td><td>Outdoor unit initially communicating normally fails to return signal for specified length of time.</td><td>• Backup setting is being used for outdoor units.
• Check power supply to outdoor unit. (Is power turned on?)
• Check connection of tie cables between outdoor units for bad contact or broken wire.
• Check communication connectors on outdoor P.C. boards.
• Check for failure in outdoor P.C. board (I/F).</td></tr>
<tr><td>The check code which occurred follower outdoor unit is displayed</td><td>E28</td><td>Detected outdoor unit No.</td><td>I/F</td><td>Outdoor follower unit trouble</td><td>All stop</td><td>Outdoor header unit receives trouble code from outdoor follower unit.</td><td>• Check check code displayed on outdoor follower unit.
<Convenient functions>
If SW04 is pressed and held for at least 1 second while [E28] is displayed on the 7-segment display of outdoor header unit, the fan of the outdoor unit that has been shut down due to an trouble comes on.
If SW04 and SW05 are pressed simultaneously, the fans of normal outdoor units come on.
To stop the fan or fans, press SW05 on its own.</td></tr>
<tr><td rowspan="2">E31</td><td rowspan="2">E31</td><td>
<table>
<tr><th></th><th colspan="4">P.C.board</th></tr>
<tr><th></th><th colspan="2">Compressor</th><th colspan="2">Fan Motor</th></tr>
<tr><th></th><th>1</th><th>2</th><th>1</th><th>2</th></tr>
<tr><td>01</td><td>O</td><td></td><td></td><td></td></tr>
<tr><td>02</td><td></td><td>O</td><td></td><td></td></tr>
<tr><td>03</td><td>O</td><td>O</td><td></td><td></td></tr>
<tr><td>08</td><td></td><td></td><td>O</td><td></td></tr>
<tr><td>09</td><td>O</td><td></td><td>O</td><td></td></tr>
<tr><td>0A</td><td></td><td>O</td><td>O</td><td></td></tr>
<tr><td>0B</td><td>O</td><td>O</td><td>O</td><td></td></tr>
<tr><td>10</td><td></td><td></td><td></td><td>O</td></tr>
<tr><td>11</td><td>O</td><td></td><td></td><td>O</td></tr>
<tr><td>12</td><td></td><td>O</td><td></td><td>O</td></tr>
<tr><td>13</td><td>O</td><td>O</td><td></td><td>O</td></tr>
<tr><td>18</td><td></td><td></td><td>O</td><td>O</td></tr>
<tr><td>19</td><td>O</td><td></td><td>O</td><td>O</td></tr>
<tr><td>1A</td><td></td><td>O</td><td>O</td><td>O</td></tr>
<tr><td>1B</td><td>O</td><td>O</td><td>O</td><td>O</td></tr>
</table>
Circle (O): Trouble P.C. board
</td><td>I/F</td><td>P.C. board communication trouble</td><td>All stop</td><td>Communication is disrupted between P.C. board in inverter box.</td><td>• Check wiring and connectors involved in communication between P.C. board I/F P.C. board for bad contact or broken wire.
• Check for failure in outdoor P.C. board (I/F, comp. P.C. board or Fan P.C. board).
• Check for external noise.</td></tr>
<tr><td>80</td><td></td><td>Communication trouble between MCU and Sub MCU</td><td>All stop</td><td>Communication between MCU and Sub MCU stopped.</td><td>• Operation of power supply reset (OFF for 60 seconds or more)
• Outdoor I/F PC board trouble check</td></tr>
</table>

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Controller	Outdoor 7-segment display						
	Check code	Sub-code					
F01	—	—	Indoor unit	Indoor TCJ sensor trouble	Stop of corresponding unit	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TCJ sensor connector and wiring. • Check resistance characteristics of TCJ sensor. • Check for failure in indoor P.C. board.
F02	—	—	Indoor unit	Indoor TC2 sensor trouble	Stop of corresponding unit	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TC2 sensor connector and wiring. • Check resistance characteristics of TC2 sensor. • Check for failure in indoor P.C. board.
F03	—	—	Indoor unit	Indoor TC1 sensor trouble	Stop of corresponding unit	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TC1 sensor connector and wiring. • Check resistance characteristics of TC1 sensor. • Check for failure in indoor P.C. board.
F04	F04	—	I/F	TD1 sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TD1 sensor connector. • Check resistance characteristics of TD1 sensor. • Check for failure in outdoor P.C. board (I/F).
F05	F05	—	I/F	TD2 sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TD2 sensor connector. • Check resistance characteristics of TD2 sensor. • Check for failure in outdoor P.C. board (I/F).
F06	F06	01: TE1 sensor trouble 02: TE2 sensor trouble 03: TE3 sensor trouble	I/F	TE1/TE2/TE3 sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TE1/TE2/TE3 sensor connectors. • Check resistance characteristics of TE1/TE2/TE3 sensors. • Check for failure in outdoor P.C. board (I/F).
F07	F07	01: TL1 sensor trouble 02: TL2 sensor trouble 03: TL3 sensor trouble	I/F	TL1/TL2/TL3 sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TL1/TL2/TL3 sensor connector. • Check resistance characteristics of TL1/TL2/TL3 sensor. • Check for failure in outdoor P.C. board (I/F).
F08	F08	—	I/F	TO sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TO sensor connector. • Check resistance characteristics of TO sensor. • Check for failure in outdoor P.C. board (I/F).
F09	F09	01: TG1 sensor trouble 02: TG2 sensor trouble 03: TG3 sensor trouble	I/F	TG1/TG2/TG3 sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TG1/TG2/TG3 sensor connectors. • Check resistance characteristics of TG1/TG2/TG3 sensors. • Check for failure in outdoor P.C. board (I/F).
F10	—	—	Indoor unit	Indoor TA sensor trouble	Stop of corresponding unit	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TA sensor connector and wiring. • Check resistance characteristics of TA sensor. • Check for failure in indoor P.C. board.

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Controller	Outdoor 7-segment display						
	Check code	Sub-code					
F11	—	—	Indoor unit	Indoor TF sensor trouble	Stop of corresponding unit	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TF sensor connector and wiring. • Check resistance characteristics of TF sensor. • Check for failure in indoor P.C. board.
F12	F12	01: TS1 sensor trouble 02: TS2 sensor trouble 03: TS3 sensor trouble	I/F	TS1/TS2/TS3 sensor trouble	All stop	• Sensor resistance is infinity or zero (open/short circuit). • When TS3 detects an unusual temperature during compressor operation and PMV4 operation in cooling mode.	• Check connection of TS1/TS2/TS3 sensor connector • Check resistance characteristics of TS1/TS2/TS3 sensor. • Check for failure in indoor P.C. board.
F13	F13	1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	TH sensor trouble	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Failure in IPM built-in temperature sensor → Replace Compressor P.C. board.
F15	F15	—	I/F	Outdoor temperature sensor wiring trouble (TE1, TL1)	All stop	During compressor operation in HEAT mode, TL1 continuously provides temperature reading higher than indicated by TL1 by at least specified margin for 3 minutes or more.	• Check installation of TE1 and TL1 sensors. • Check resistance characteristics of TE1 and TL1 sensors. • Check for outdoor P.C. board (I/F) trouble
F16	F16	—	I/F	Outdoor pressure sensor wiring trouble (Pd, Ps)	All stop	Readings of high-pressure Pd sensor and low-pressure Ps sensor are switched. Output voltages of both sensors are zero.	• Check connection of high-pressure Pd sensor connector. • Check connection of low-pressure Ps sensor connector. • Check for failure in pressure sensors Pd and Ps. • Check for trouble in outdoor P.C. board (I/F). • Check for compressor poor compression.
F23	F23	—	I/F	Ps sensor trouble	All stop	Output voltage of Ps sensor is zero.	• Check for connection trouble involving Ps sensor and Pd sensor connectors. • Check connection of Ps sensor connector. • Check for failure in Ps sensor. • Check for compressor poor compression. • Check for failure in 4-way valve. • Check for failure in outdoor P.C. board (I/F). • Check for failure in SV4 circuit.
F24	F24	—	I/F	Pd sensor trouble	All stop	Output voltage of Pd sensor is zero (sensor open-circuited). Pd > 4.15MPa despite compressor having been turned off.	• Check connection of Pd sensor connector. • Check for failure in Pd sensor. • Check for failure in outdoor P.C. board (I/F).
F29	—	—	Indoor unit	Other indoor trouble	Stop of corresponding unit	Indoor P.C. board does not operate normally.	• Check for failure in indoor P.C. board (failure EEPROM)
F31	F31	—	I/F	Outdoor EEPROM trouble	All stop *1	Outdoor P.C. board (I/F) does not operate normally.	• Check power supply voltage. • Check power supply noise. • Check for failure in outdoor P.C. board (I/F).

*1 Total shutdown in case of header unit
Continued operation in case of follower unit

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Controller	Outdoor 7-segment display						
	Check code	Sub-code					
H01	H01	1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	Compressor breakdown	All stop	Inverter current detection circuit detects overcurrent and shuts system down.	• Check power supply voltage. (AC380-415V ± 10%). • Check for failure in compressor. • Check for possible cause of abnormal overloading. • Check for failure in outdoor P.C. board (Compressor).
H02	H02	1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	Compressor trouble (lockup)	All stop	Overcurrent is detected several seconds after startup of inverter compressor.	• Check for failure in compressor. • Check compressor system wiring, particularly for open phase. • Check connection of connectors/terminals on compressor P.C. board. • Check conductivity of case heater. (Check for refrigerant problem inside compressor.)
H03	H03	1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	Current detection circuit trouble	All stop	Current flow of at least specified magnitude is detected despite inverter compressor having been shut turned off.	• Check current detection circuit wiring. • Check failure in outdoor P.C. board (Compressor).
H05	H05	—	I/F	TD1 sensor miswiring (incomplete insertion)	All stop	Discharge temperature of compressor 1 (TD1) does not increase despite compressor being in operation.	• Check installation of TD1 sensor. • Check connection of TD1 sensor connector and wiring. • Check resistance characteristics of TD1 sensor. • Check for failure in outdoor P.C. board (I/F).
H06	H06	—	I/F	Activation of low-pressure protection	All stop	Low-pressure Ps sensor detects operating pressure lower than 0.02MPa.	• Check service valves to confirm full opening (both gas and liquid sides). • Check outdoor PMVs for clogging (PMV1, 2, 3). • Check for failure in SV4 circuits. • Check for failure in low-pressure Ps sensor. • Check indoor filter for clogging. • Check valve opening status of indoor PMV. • Check refrigerant piping for clogging. • Check operation of outdoor fan (during heating). • Check for insufficiency in refrigerant quantity.
H07	H07	—	I/F	Low oil level protection	All stop	Operating compressor detects continuous state of low oil level for about 2 hours.	<All outdoor units in corresponding line to be checked> • Check connection and installation of TK1 and TK2 sensors. • Check resistance characteristics of TK1 and TK2 sensors. • Check for gas or oil leak in same line. • Check for refrigerant problem inside compressor casing. • Check SV3D, SV3F valves for failure. • Check oil return circuit of oil separator for clogging. • Check oil equalizing circuit for clogging.

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Controller	Outdoor 7-segment display						
	Check code	Sub-code					
H08	H08	01: TK1 sensor trouble 02: TK2 sensor trouble	I/F	Trouble in temperature sensor for oil level detection	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TK1 sensor connector. • Check resistance characteristics of TK1 sensor. • Check for failure in outdoor P.C. board (I/F).
					All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TK2 sensor connector. • Check resistance characteristics of TK2 sensor. • Check for failure in outdoor P.C. board (I/F).
H15	H15	—	I/F	TD2 sensor miswiring (incomplete insertion)	All stop	Discharge temperature of (TD2) does not increase despite compressor 2 being in operation.	• Check installation of TD2 sensor. • Check connection of TD2 sensor connector and wiring. • Check resistance characteristics of TD2 sensor. • Check for failure in outdoor P.C. board (I/F).
H16	H16	01: TK1 oil circuit trouble 02: TK2 oil circuit trouble	I/F	Oil level detection circuit trouble	All stop	No temperature change is detected by TK1 despite compressor 1 having been started.	• Check for disconnection of TK1 sensor. • Check resistance characteristics of TK1 sensor. • Check for connection trouble involving TK1 and TK2 sensors • Check for clogging in oil equalizing circuit capillary. • Check for refrigerant entrapment inside compressor.
						No temperature change is detected by TK2 despite compressor 2 having been started.	• Check for disconnection of TK2 sensor. • Check resistance characteristics of TK2 sensor. • Check for connection trouble involving TK1 and TK2 sensors • Check SV3F valve malfunction. • Check for clogging in oil equalizing circuit capillary. • Check for refrigerant entrapment inside compressor.
H17	H17	1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	Compressor trouble (Step-out)	All stop	Compressor is in step-out condition.	• Check power supply voltage. (AC380-415V ± 10%). • Check for failure in compressor. • Check for possible cause of abnormal overloading. • Check for failure in outdoor P.C. board (compressor).
H28	H28	1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	Compressor motor winding trouble	All stop	Abnormal compressor current is detected	• Check for failure in compressor. • Check connection of connectors/terminals on compressor and compressor P.C.board. • Check winding resistance between phases of compressor.

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Controller	Outdoor 7-segment display						
	Check code	Sub-code					
J01	—	—	FS unit	Communication trouble between indoor unit(s) and FS unit	Stop of corresponding unit(s) (Indoor unit(s) connected to the same FS unit)	FS unit not receiving signal from indoor unit(s)	• Check wiring between FS unit and indoor unit(s). • Check FS unit port address setting of indoor unit. • Check FS unit port combining branches setting of indoor unit.
J02	—	—	Indoor unit	Communication trouble between control boards in Flow Selector unit	Stop of corresponding unit(s) (Indoor units (s) connected to the same FS unit)	There is no communication from P.C.board after No.2 of FS unit Multi-port type.	• Check connector connection of FS unit for PC board communication. • Check for PC board defects in FS unit. • Check FS unit control number setting (SW01 of FS unit, Bit 1 to 4).
J03	—	—	Indoor unit	Duplicated FS units	Stop of corresponding unit(s)	Multiple FS unit (or SV units) are installed in one indoor unit.	• Check indoor unit(s) - FS unit(s) cable
J29	—	—	Indoor unit	Leak Detector Trouble	• Continued operation • All stop (detected when power is turned on)	• There is no communication from Leak Detector • A Malfunction signal received from Leak Detector.	• Check Malfunction LED of Leak Detector. • Check disconnection and connectors of Leak Detector • Check PC board defects of Leak Detector. • Check PC board defects of indoor unit.
J30	J30	Detected indoor unit address	Indoor unit	Refrigerant leak detection	All stop (Safety measures setting of indoor unit is "Pump-down operation" or "Leak Detector only"	Leak Detector detects refrigerant leak	• Check refrigerant detection status of Leak Detector. • Check refrigerant leaks from indoor unit. • Check for false detection.
	—	—	Indoor unit		Stop of corresponding unit(s) (Safety measures setting of indoor unit is "Individual shut-off operation")		
J31	—	—	Indoor unit	Refrigerant leak detection sensor exceeding its life of the product	Continued operation	The energization time of refrigerant sensor has reached 10 years.	• Check Malfunction LED of Leak Detector. • Check refrigerant sensor of Leak Detector.
L02	L02	—	Indoor unit	Outdoor units model disagreement trouble	Stop of corresponding unit	In case of different outdoor unit (Not corresponded to Air to Air Heat Exchanger type)	• Check outdoor unit model. (Check whether the outdoor unit corresponds to Air to Air Heat Exchanger type or not.)
		Detected indoor unit address	I/F	Indoor unit incompatible with A2L refrigerant	All stop	• Indoor unit incompatible with TU2C-Link is connected. • Remote controller or FS unit incompatible with TU2C-Link is connected. • Indoor unit incompatible with R32 refrigerant is connected.	• Check Indoor unit model. • Check if an indoor unit compatible with R32 refrigerant is connected. • Check if remote controller of Flow Selector unit compatible with TU2C-Link is connected.
L03	—	—	Indoor unit	Duplicated indoor header unit	Stop of corresponding unit	There are more than one header units in group.	• Check indoor addresses. • Check for any change made to remote controller connection (group/ individual) since indoor address setting.
L04	L04	—	I/F	Duplicated outdoor line address	All stop	There is duplication in line address setting for outdoor units belonging to different refrigerant piping systems.	• Check line addresses.

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Controller	Outdoor 7-segment display						
	Check code	Sub-code					
L05	—	—	I/F	Duplicated priority indoor unit (as displayed on priority indoor unit)	All stop	More than one indoor units have been set up as priority indoor unit.	• Check display on priority indoor unit.
L06	L06	No. of priority indoor units	I/F	Duplicated priority indoor unit (as displayed on indoor unit other than priority indoor unit)	All stop	More than one indoor units have been set up as priority indoor unit.	• Check displays on priority indoor unit and outdoor unit.
L07	—	—	Indoor unit	Connection of group control cable to standalone indoor unit	Stop of corresponding unit	There is at least one standalone indoor unit to which group control cable is connected.	• Check group address.
L08	L08	—	Indoor unit	Indoor group / addresses not set	Stop of corresponding unit	Address setting has not been performed for indoor units.	• Check address setting. **Note:** **This code is displayed when power is turned on for the first time after installation.**
L09	—	—	Indoor unit	Indoor capacity not set	Stop of corresponding unit	Capacity setting has not been performed for indoor unit.	Set indoor capacity. (DN = 11)
L10	L10	—	I/F	Outdoor capacity not set	All stop	Initial setting of I/F P.C. board has not been implemented.	• Check model setting of P.C. board for servicing outdoor I/F P.C. board.
L11	L11	Detected indoor unit address	I/F	FS unit or Shut-off Valve unit installation trouble	All stop	• Outdoor unit is set to "HR", there is no connection to Flow Selector unit, and indoor unit is not set to "cooling only". • Outdoor unit is set to "HP" and the FS unit is connected	• Check connection of the communication line between indoor unit and FS unit. • Check HP/HR settings of outdoor unit. (DIP-SW SW104 bit1) • Check cooling-only setting of indoor units. • Check if FS unit or Shut-off Valve unit is installed correctly.
L13	L13	Detected indoor unit address	I/F	Safety measures setting unmatched	All stop	• Safety measures setting of indoor unit connected to same FS unit (or SV unit) is mismatched. • No indoor unit is connected to No.1 port of FS unit Multi-port type. • A number that is one larger than the port address of the indoor unit for which "combining branches" is set. • (Example; If the port address of the indoor unit for which "combining branches" is set to 3, 4 must not be set) • Multiple remote controller groups are set to one port of the FS unit, and different port address is set for one of the groups. • Same address is set for different FS units.	• Check safety measures settings of indoor units. • Check FS unit address setting of indoor unit. • Check FS unit port address setting of indoor unit. • Check FS unit port combining branches settings of indoor units. • Check group setting of indoor unit. • Check PC board defects of indoor unit. • Check cooling-only setting of indoor units.

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Controller	Outdoor 7-segment display						
	Check code	Sub-code					
L14	L14	Detected indoor unit address	I/F	Safety measures nonconformity	All stop	• Safety measures setting is set other than "no safety measures" and Leak Detector is not connected. (Detected when power is turned on.) • Safety measures setting is set to "Pump-down operation" or "Individual shut-off operation" and FS unit or SV unit is not connected. • Safety measures setting is set to "Individual shut-off operation" and connected to FS unit Multi-port type.	• Check safety measures settings of indoor units. • Check disconnection and connectors of Leak Detector. • Check P.C.board defects of Leak Detector. • Check connection of communication line between indoor unit and FS unit or shut-off valve unit. • Check PC board defects of FS unit or shut-off valve unit. • Check PC board defects in the indoor unit. • Check cooling-only setting of indoor units.
L17	L17	—	I/F	Outdoor model incompatibility trouble	All stop	Other series outdoor unit are connected.	• Check No. of outdoor units connected (Only single systems allowed)
L20	—	—	Network adaptor Indoor unit	Duplicated central control address	All stop	There is duplication in central control address setting.	• Check central control addresses.
L23	—	—	I/F	SW setting trouble	All stop	Outdoor P.C. board (I/F) does not operate normally.	• Check switch setting of outdoor P.C. board (I/F).
L24	L24	02: Indoor units operation mode priority setting	I/F	FS unit (s) setting trouble	All stop	Priority setting has not been performed for indoor units.	• Check FS units adders. operation mode priority setting. • Check outdoor unit 7 segment monitor.
L28	L28	Number of connected outdoor units	I/F	Too many outdoor units connected	All stop	There are more than 2 outdoor units.	• Check No. of outdoor units connected (Only single systems allowd). • Check communication lines between outdoor units. • Check for failure in outdoor P.C. board (I/F).
L29	L29	P.C.board / Compressor / Fan Motor / 1 / 2 01 O 02 O 03 O O 08 O 09 O O 0A O O 0B O O O 10 O 11 O O 12 O O 13 O O O 18 O O 19 O O O 1A O O O 1B O O O O Circle (O): Trouble P.C. board	I/F	Trouble in No. of P.C. board	All stop	Insufficient number of P.C. board are detected when power is turned on.	• Check model setting of P.C. board for servicing outdoor I/F P.C. board. • Check connection of UART communication connector. • Check compressor P.C. board, fan P.C. board, and I/F P.C. board for failure.
		00	I/F	The number of inverter P.C. boards is abnormal.	All stop	When there is much number of an inverter P.C. board to model setting of an interface P.C. board.	• Check I/F P.C. board exchange has been correctly performed as a procedure. • Check for failure in I/F P.C. board. • Check for inverter P.C. board for compressors and inverter P.C. board for fan

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Controller	Outdoor 7-segment display						
	Check code	Sub-code					
L30	L30	Detected indoor address	Indoor unit	Indoor external interlock (External abnormal input)	Stop of corresponding unit	• Indoor unit has been shut down due to external abnormal input signal.	**When external device is connected:** 1) Check for trouble in external device. 2) Check for trouble in indoor P.C. board. **When external device is not connected:** 1) Check for trouble in indoor P.C. board.
—	L31	—	I/F	Extended IC trouble	Continued operation	There is part failure in P.C. board (I/F).	Check outdoor P.C. board (I/F).
P01	—	—	Indoor unit	Indoor fan motor trouble	Stop of corresponding unit		• Check the lock of fan motor (AC fan). • Check wiring.
P03	P03	—	I/F	Discharge temperature TD1 trouble	All stop	Discharge temperature (TD1) exceeds 115 ˚C.	• Check outdoor service valves (gas side, liquid side) to confirm full opening. • Check outdoor PMVs (PMV1, 2, 3, 4) for clogging. • Check resistance characteristics of TD1 sensor. • Check for insufficiency in refrigerant quantity. • Check for failure in 4-way valve. • Check for leakage of SV4 circuit. • Check SV4 circuit (wiring or installation trouble in SV41 or SV42). • Check for PMV5 failure (closed state)
P04	P04	01: Compressor 1 side 02: Compressor 2 side	I/F	Activation of high-pressure SW	All stop	High-pressure SW is activated.	• Check connection of high-pressure SW connector. • Check for failure in Pd pressure sensor. • Check outdoor service valves (gas side, liquid side) to confirm full opening. • Check for failure in outdoor fan. • Check for failure in outdoor fan motor. • Check outdoor PMVs (PMV1, 2, 3) for clogging. • Check indoor/outdoor heat exchangers for clogging. • Check for short-circuiting of outdoor suction/discharge air flows. • Check for failure in outdoor P.C. board (I/F). • Check for trouble in indoor fan system (possible cause of air flow reduction). • Check opening status of indoor PMV. • Check indoor-outdoor communication line for wiring trouble. • Check for failure operation of check valve in discharge pipe convergent section. • Check gas balancing SV4 valve circuit. • Check for refrigerant overcharging.
P05	P05	00: Power detection trouble 01: Open phase 02: Power supply miswiring	I/F	Power detection trouble / Open phase detection / Power supply miswiring	All stop	• Open phase is detected when power is turned on.	• Check for failure in outdoor P.C. board (I/F). • Check wiring of outdoor power supply. • Check power supply voltage.
		1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	Compressor Vdc trouble	All stop	• Inverter DC voltage is too high (over voltage) or too low (under voltage).	

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Controller	Outdoor 7-segment display						
	Check code	Sub-code					
P07	P07	1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	Heat sink overheating trouble	All stop	Temperature sensor built into IPM (TH) is overheated.	• Check outdoor fan system trouble. • Check IPM and heat sink for thermal performance for failure installation. (e.g. mounting screws and thermal conductivity) • Check for failure in Compressor P.C. board. (failure IPM built-in temperature sensor (TH))
		01: Compressor 1 heat sink trouble 02: Compressor 2 heat sink trouble 04: Heat sink dewing	I/F	Heat sink overheating trouble Heat sink dewing trouble	All stop	Condensation detection on heat sink has occurred four times or more in operation. Temperature sensor built into IPM (TH) is overheated.	• Check outdoor fan system trouble. • Check IPM and heat sink for thermal performance for troubled installation. (e. g. mounting screws and thermal conductivity) • Check for failure in compressor P.C. board. (failure IPM built-in temperature sensor (TH)) • Check shortage of refrigerant. • Check outdoor service valves. • Check connection of TL2 sensor. • Check resistance characteristics of TL2 sensor. • Check resistance characteristics of TO sensor. • Check malfunctions of Pd and Ps sensors. • Check outdoor I/F P.C. board malfunction. • Check PMV2 and PMV3. • Check refrigerant stagnation.
P10	P10	Detected indoor address	Indoor unit	Indoor overflow trouble	All stop	• Float switch operates. • Float switch circuit is open-circuited or disconnected at connector.	• Check float switch connector. • Check operation of drain pump. • Check drain pump circuit. • Check drain pipe for clogging. • Check for failure in indoor P.C. board.
P11	—	—	I/F	Outdoor heat exchanger freeze trouble	All stop	• Outdoor heat exchanger remaining frost detection has occurred eight times or more due to abnormal frost formation in heating operation.	• Check shortage of refrigerant. • Check connection of TE1, TE2 and TE3 sensors. • Check resistance characteristics of TE1, TE2, and TE3 sensors. • Check disconnection of TS1 sensor. • Check resistance characteristics of TS1 sensor. • Check outdoor I/F P.C. board malfunction. • Check operation of 4 way valve. • Check operation of outdoor PMV (1, 2, 3). • Check short circuit from outlet air to inlet air.
P12	—	—	Indoor unit	Indoor fan motor trouble	Stop of corresponding unit	• Motor speed measurements continuously deviate from target value. • Overcurrent protection is activated.	• Check connection of fan connector and wiring. • Check for failure in fan motor. • Check for failure in indoor P.C. board. • Check impact of outside air treatment (OA).

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Controller	Outdoor 7-segment display						
	Check code	Sub-code					
P13	P13	—	I/F	Outdoor liquid backflow detection trouble	All stop	<During cooling operation> When system is in cooling operation, high pressure is detected in the unit that has been turned off. <During heating operation> When system is in heating operation, low pressure is detected to be high in unit that has been turned off.	• Check full-close operation of outdoor PMV (1, 2, 3, 4). • Check for failure in Pd or Ps sensor. • Check failure in outdoor P.C. board (I/F). • Check capillary of oil separator oil return circuit for clogging. • Check for leakage of check valve in discharge pipe
P14	P14	01: Outdoor unit valve is closed	I/F	Another refrigerant cycle protection	All stop	Outdoor unit valve is forgotten to open during test run.	• Check service valves to confirm full opening. (both gas and liquid sides) • Check connection indoor-outdoor unit communication cable. • Check indoor unit sensor and PMV. • Check for broken or clogging at refrigerant piping.
P15	P15	01: TS condition	I/F	Gas leak detection (TS1 condition)	All stop	Protective shutdown due to sustained suction temperature at or above judgment criterion for at least 10 minutes is repeated four times or more. <TS trouble judgment criterion> In cooling operation: 60 ˚C In heating operation: 40 ˚C	• Check for insufficiency in refrigerant quantity. • Check outdoor service valves (gas side, liquid side) to confirm full opening. • Check PMVs (PMV1, 2, 3, 4) for clogging. • Check resistance characteristics of TS1 sensor. • Check for failure in 4-way valve. • Check SV4 circuit for leakage
		02: TD condition	I/F	Gas leak detection (TD condition)	All stop	Protective shutdown due to sustained discharge temperature (TD1 or TD2) at or above 108 ˚C for at least 10 minutes is repeated four times or more.	• Check for insufficiency in refrigerant quantity. • Check PMVs (PMV 1, 2, 3, 4) for clogging. • Check resistance characteristics of TD1 and TD2 sensors. • Check indoor filter for clogging. • Check piping for clogging. • Check SV4 circuit (for leakage or coil installation trouble).
P16	P16	01 : PMV5	I/F	Injection circuit trouble	All stop	• Either Comp 1 or Comp 2 discharge temperature is within normal control range, and the other discharge temperature is 30°C lower than the other. • Either Comp 1 or Comp 2 discharge temperature is within normal control range, and the other discharge temperature is 5°C lower than condensing temperature.	• Check for PMV5 failure • Check for coil failure in PMV5 and loose connection of its connector • Check SV3F valve for failure
		02 : PMV6					• Check for PMV6 failure • Check for coil failure in PMV5 and loose connection of its connector • Check SV3F valve for failure
		03 : Misinstallation of PMV5 and PMV6				• Either Comp 1 or Comp 2 discharge temperature exceeds 100°C, and other is less than 60°C.	• Check for coil misinstallation of PMV5 and PMV6 • Check for PMV5 and PMV6 failure • Check for coil failure in PMV5 and PMV6 and loose connection of its connector. • Check for PMV5 or PMV6 failure (Open state)

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Controller	Outdoor 7-segment display						
	Check code	Sub-code					
P13	P13	—	I/F	Outdoor liquid backflow detection trouble	All stop	<During cooling operation> When system is in cooling operation, high pressure is detected in the unit that has been turned off. <During heating operation> When system is in heating operation, low pressure is detected to be high in unit that has been turned off.	• Check full-close operation of outdoor PMV (1, 2, 3, 4). • Check for failure in Pd or Ps sensor. • Check failure in outdoor P.C. board (I/F). • Check capillary of oil separator oil return circuit for clogging. • Check for leakage of check valve in discharge pipe
P14	P14	01: Outdoor unit valve is closed	I/F	Another refrigerant cycle protection	All stop	Outdoor unit valve is forgotten to open during test run.	• Check service valves to confirm full opening. (both gas and liquid sides) • Check connection indoor-outdoor unit communication cable. • Check indoor unit sensor and PMV. • Check for broken or clogging at refrigerant piping.
P15	P15	01: TS condition	I/F	Gas leak detection (TS1 condition)	All stop	Protective shutdown due to sustained suction temperature at or above judgment criterion for at least 10 minutes is repeated four times or more. <TS trouble judgment criterion> In cooling operation: 60 ˚C In heating operation: 40 ˚C	• Check for insufficiency in refrigerant quantity. • Check outdoor service valves (gas side, liquid side) to confirm full opening. • Check PMVs (PMV1, 2, 3, 4) for clogging. • Check resistance characteristics of TS1 sensor. • Check for failure in 4-way valve. • Check SV4 circuit for leakage
		02: TD condition	I/F	Gas leak detection (TD condition)	All stop	Protective shutdown due to sustained discharge temperature (TD1 or TD2) at or above 108 ˚C for at least 10 minutes is repeated four times or more.	• Check for insufficiency in refrigerant quantity. • Check PMVs (PMV 1, 2, 3, 4) for clogging. • Check resistance characteristics of TD1 and TD2 sensors. • Check indoor filter for clogging. • Check piping for clogging. • Check SV4 circuit (for leakage or coil installation trouble).
P16	P16	01 : PMV5	I/F	Injection circuit trouble	All stop	• Either Comp 1 or Comp 2 discharge temperature is within normal control range, and the other discharge temperature is 30°C lower than the other. • Either Comp 1 or Comp 2 discharge temperature is within normal control range, and the other discharge temperature is 5°C lower than condensing temperature.	• Check for PMV5 failure • Check for coil failure in PMV5 and loose connection of its connector • Check SV3F valve for failure
		02 : PMV6					• Check for PMV6 failure • Check for coil failure in PMV5 and loose connection of its connector • Check SV3F valve for failure
		03 : Misinstallation of PMV5 and PMV6				• Either Comp 1 or Comp 2 discharge temperature exceeds 100°C, and other is less than 60°C.	• Check for coil misinstallation of PMV5 and PMV6 • Check for PMV5 and PMV6 failure • Check for coil failure in PMV5 and PMV6 and loose connection of its connector. • Check for PMV5 or PMV6 failure (Open state)

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Controller	Outdoor 7-segment display						
	Check code	Sub-code					
P17	P17	—	I/F	Discharge temperature TD2 trouble	All stop	Discharge temperature (TD2) exceeds 115 ˚C.	• Check outdoor service valves (gas side, liquid side) to confirm full opening. • Check outdoor PMVs (PMV1, 2, 3, 4) for clogging. • Check resistance characteristics of TD2 sensor. • Check for failure in 4-way valve. • Check SV4 circuit for leakage. • Check SV4 circuit (for wiring or installation trouble involving SV41 and SV42). • Check for PMV6 failure (closed state)
P19	P19	0# 4-way valves * Put in outdoor unit No. in [#] mark.	I/F	4-way valve reversing trouble	All stop	Abnormal refrigerating cycle data is collected during heating operation.	• Check for failure in main body of 4-way valves. • Check for coil failure in 4-way valve and loose connection of its connector. • Check resistance characteristics of TS1 and TE1,TE2, TE3 sensors. • Check output voltage characteristics of Pd and Ps pressure sensors. • Check for wiring trouble involving TE1 and TL1 sensors.
		1# 4-way valve1		4-way valve1 reversing trouble		• Temperature difference between the TG1 and TU is 2°C or less during cooling operation. • TG1 temperature is more than 20°C higher than TG during heating operation.	• Check for failure in main body of 4-way valve1. • Check for coil failure in 4-way valve1 and loose connection of its connector. • Check resistance characteristics of TG1 sensor. • Check output voltage characteristics of Pd and Ps pressure sensors. • Check the attachment of TG1 sensor.
		2# 4-way valve2		4-way valve2 reversing trouble		• Temperature difference between the TG2 and TG3 is 2°C or less during cooling operation. • TG2 or TG3 temperature is more than 20°C higher than TG during heating operation.	• Check for failure in main body of 4-way valve2. • Check for coil failure in 4-way valve2 and loose connection of its connector. • Check resistance characteristics of TG2 or TG3 sensors. • Check output voltage characteristics of Pd and Ps pressure sensors. • Check the attachment of TG2 or TG3 sensors.

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Controller	Outdoor 7-segment display						
	Check code	Sub-code					
P20	P20	—	I/F	Activation of high-pressure protection	All stop	<During cooling operation> Pd sensor detects pressure equal to or greater than 3.85 MPa. <During heating operation> Pd sensor detects pressure equal to or greater than 3.6 MPa.	• Check for failure in Pd pressure sensor. • Check service valves (gas side, liquid side) to confirm full opening. • Check for failure in outdoor fan. • Check for failure in outdoor fan motor. • Check outdoor PMV (PMV1, 2, 3, 4) for clogging. • Check indoor/outdoor heat exchangers for clogging. • Check for short-circuiting of outdoor suction/discharge air flows. • Check for failure in outdoor P.C. board (I/F). • Check for failure in indoor fan system (possible cause of air flow reduction). • Check opening status of indoor PMV. • Check indoor-outdoor communication line for wiring trouble. • Check for trouble operation of check valve in discharge pipe convergent section. • Check gas balancing SV4 valve circuit. • Check for refrigerant overcharging. • Check for failure in main body of 4-way valve2. (During simultaneous cooling mode) • Check for coil failure in 4-way valve 2 and loose connection of its connector. (During simultaneous cooling mode)
P22	P22	1∗: Fan P.C. board 1 2∗: Fan P.C. board 2	Fan INV. P.C. board	Outdoor fan P.C. board trouble	All stop	Protected operation of Fan inverter P.C. board	• Check fan motor. • Check for failure in fan P.C. board. • Check connection of fan motor connector. • Check power voltage of the main power supply.
P25	P25	1∗: Compressor 1 side 2*: Compressor 2 side	Compressor P.C. board	Compressor P.C. board trouble	All stop	• IPM short-circuit is detected	• Check connector connection and wiring on compressor P.C.board. • Check for failure in compressor P.C.board.
P26	P26	1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	Compressor start up trouble	All stop	Open phase or IPM overcurrent for compressor is detected.	• Check for failure in compressor. • Check connection of connectors / terminals on compressor and compressor P.C.board. • Check winding resistance between phases of compressor. • Check for failure in compressor P.C.baord.
P29	P29	1∗: Compressor 1 side 2∗: Compressor 2 side	Compressor P.C. board	Compressor position detection circuit trouble	All stop	Position detection is not going on normally.	• Check wiring and connector connection. • Check for compressor layer short-circuit. • Check for failure in compressor P.C. board.

Check code			Location of detection	Description	System status	Check code detection condition(s)	Check items (locations)
Controller	Outdoor 7-segment display						
	Check code	Sub-code					
P30	Differs according to nature of alarm-causing trouble		Central control device	Group control follower unit trouble	Continued operation	Trouble occurs in follower unit under group control. ([P30] is displayed on central control remote controller.)	• Check check code of unit that has generated alarm.
	(L20 displayed.)			Duplicated central control address	Continued operation	There is duplication in central control addresses.	• Check address settings.
P31	—	—	Indoor unit	Other indoor trouble (group follower unit trouble)	Stop of corresponding unit	There is trouble in other indoor unit in group, resulting in detection of E07/L07/L03/L08.	• Check indoor P.C. board.
S01	—	—	Central control device	Central control device reception trouble	Continued operation	Central control device is unable to receive signal.	• Check for failure in central control device. • Check for failure in central control communication line. • Check terminator resistor setting. • Check power supply for devices at other end of central control communication line. • Check failure in P.C. boards of devices at other end of central control communication line.

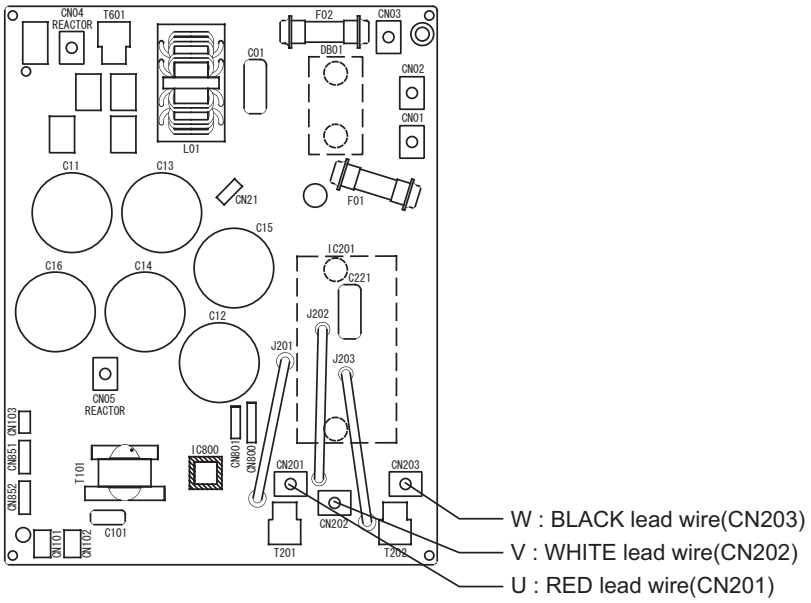
▼ Points to Note When Servicing Compressor

(1) When checking the outputs of inverters, remove the wiring from all the compressors.

▼ How to Check Inverter Output

(1) Turn off the power supply.
(2) Remove compressor leads from the compressor P.C. board.
(The model with two compressor should remove the wiring for two sets (6 leads).
(3) Turn on the power supply and start cooling or heating operation.
(4) Check the output voltage across each pair of inverter-side. If the result is unsatisfactory according to the judgment criteria given in the table below, replace the compressor P.C. board.

No.	Measured leads	Criterion
1	CN201 - CN202	240-400V
2	CN202 - CN203	240-400V
3	CN203 - CN201	240-400V



▼ How to Check Resistance of Compressor Winding

(1) Turn off the power supply.
(2) Remove compressor leads from the compressor P.C. board. (Be sure to remove all the leads.)
(3) With each compressor, check the phase-to-phase winding resistances and winding-to-outdoor cabinet resistance using a multimeter.
- Earth trouble?
  → It is normal if the winding-to-outdoor cabinet resistance is 10MΩ or more.
- Inter-winding short circuit?
  → Normal resistance between phase to phase is below. (Use a mΩ multimeter)

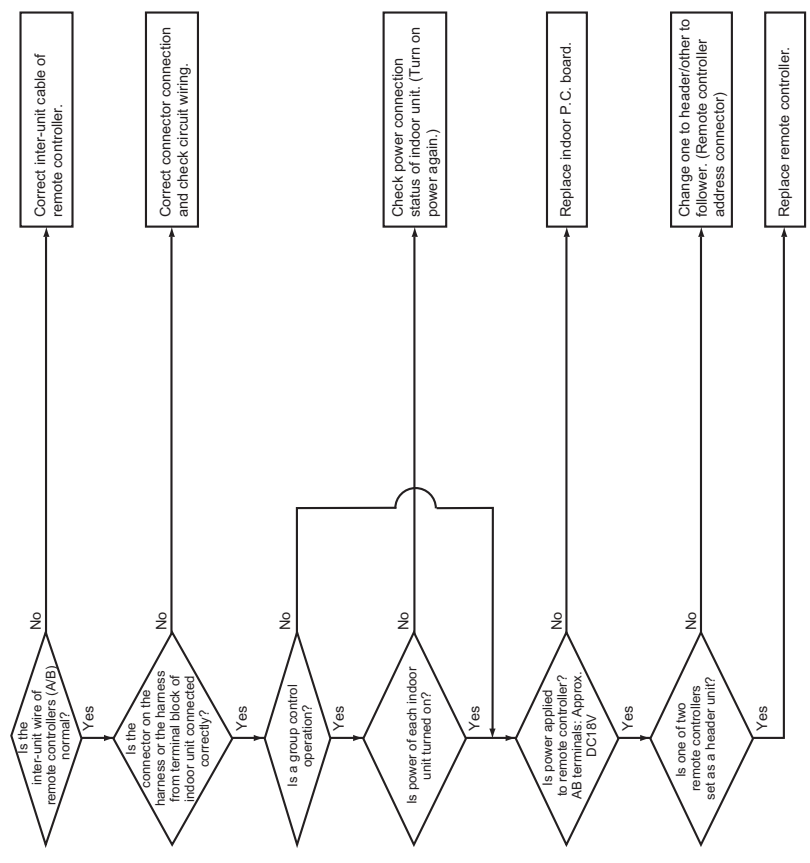
  LX771A3TJB-20M : 0.242 ± 0.012Ω
  RX423A3TJB-20M : 0.517±0.026 Ω

▼ How to Check Outdoor Fan Motor

(1) Turn off the power supply.
(2) Remove fan motor leads from the fan P.C. board for the outdoor fan.
(3) Rotate the fan by hand. If the fan does not turn, the fan motor is troubled (locked up). Replace the fan motor. If the fan turns, measure the phase-to-phase winding resistances using a multimeter. It is normal if the measurements are in the 9.3-11.5Ω range. (Use a digital multimeter.)

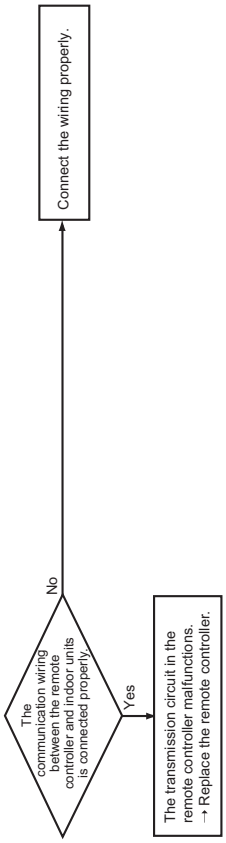
8-5. Diagnosis procedure for each check code

Check code	Check code name	Cause
[E01]	Communication trouble between the indoor unit and remote controller (detected on the remote controller)	1. Remote controller inter-unit wire trouble 2. Indoor power trouble 3. Indoor P.C. board trouble 4. Remote controller address setup trouble 5. Remote controller P.C. board trouble



Check code	Check code name	Cause
[E02]	Signal transmission trouble on the remote controller	Unable to send signals to indoor units

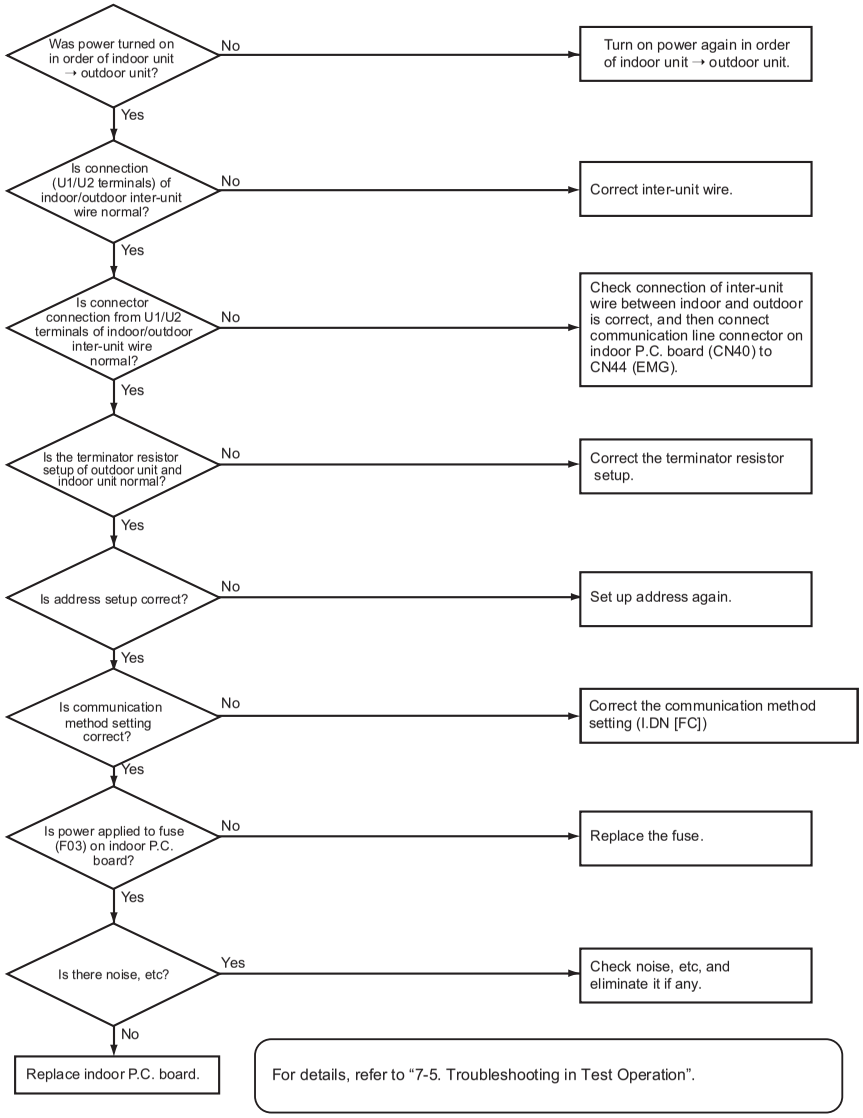
* The check code is not indicated on the central control device or the 7-segment indication on the outdoor unit.



Check code	Check code name	Cause
[E03]	Communication trouble between the indoor unit and remote controller (detected on the indoor unit)	No communication from the remote controller/communication adapter

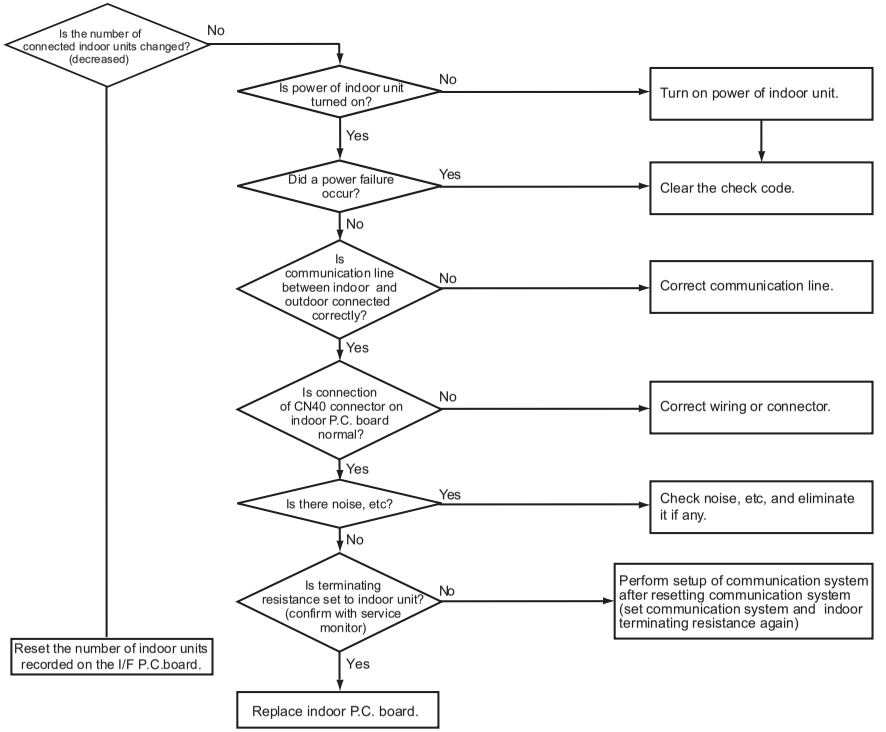
- The check code [03] is displayed when an indoor unit cannot receive the signal from a wired remote control or a wireless receiving unit. Check the communication wiring from the remote controller.
- When using an air conditioner without a remote controller by indoor unit before May, 2021 manufacture, the setting change to 0001 from 0000 is required in the indoor unit DN code (I.DN) [103]. A check code [E03] will be displayed, if it is used without making a setting change. (Excluding High wall type)
- Since communication is impossible, this check code [E03] is not displayed on a wired remote control. Check code [E03] will be displayed on the Central remote controller.

Check code	Check code name	Cause
[E04]	Indoor/Outdoor communication circuit trouble (Detected at indoor side)	1. Power of outdoor unit was firstly turned on. 2. Connection trouble of communication line between indoor and outdoor 3. Terminator resistor setup trouble on communication between indoor and outdoor 4. Address setup trouble 5. Incorrect communication method settings



Check code	Check code name	Cause
[E06]	Decreased number of indoor units	1. Communication lines Uv (U1, U2) connection trouble between indoor and outdoor 2. Communication connector's connection trouble on indoor unit, trouble on P.C. board 3. Communication connector's connection trouble on outdoor unit, trouble on I/F board 4. Power supply of indoor unit (Is power turned on?) 5. Communication trouble with indoor unit with terminating resistance set

Sub-code: No. of indoor units which received signals normally



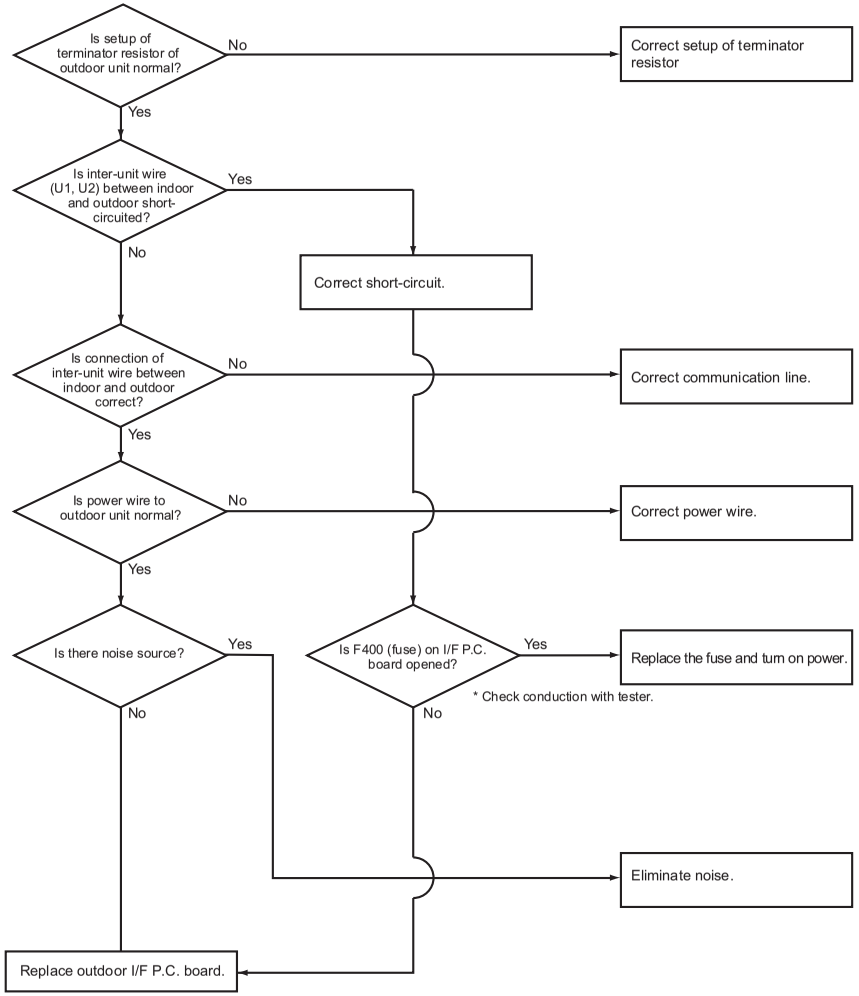
(NOTE)
1. When signal is not sent for a certain period from the indoor unit which has used to send signals normally, [E06] is displayed.
2. Address of indoor unit with terminating resistance set in system can be confirmed on service monitor of remote controller [B8]. [9999] is displayed in a case where no terminating resistance is set to any of the indoor units. See "7-7-16. Monitor Function of Remote Controller Switch" for confirmation method.

If "E06" appears on check code display or 7-segment display when the number of IDUs (Indoor units) connected in the system has been reduced (In case of IDUs powering off, or removing or transporting the unit), confirm whether all IDUs are powered. If all the indoor units are powered, confirm the number of indoor units recorded on the I/F P.C.board. If the number of indoor units currently connected is lower than that of recorded indoor units, "E06" appears on the display. If the number of IDUs connected has been reduced, set rotary SW to 1-15-15 and push SW04 on I/F P.C.board 5second or more and clear the number of IDUs recorded. Finally, confirm that the number of IDUs recorded on I/F P.C.board is equal to that of IDUs currently connected. To confirm the number of indoor units recorded on the I/F P.C.board, refer to "8-6. 7-Segment Display Function".

7-segment display when the number of indoor units is reduced

	When power is turned on	After turning on the power
HWM (Hot water module)	E06 (system stop)	E06 (system stop)
Other indoor unit	E06 (system stop)	- (continue to run)

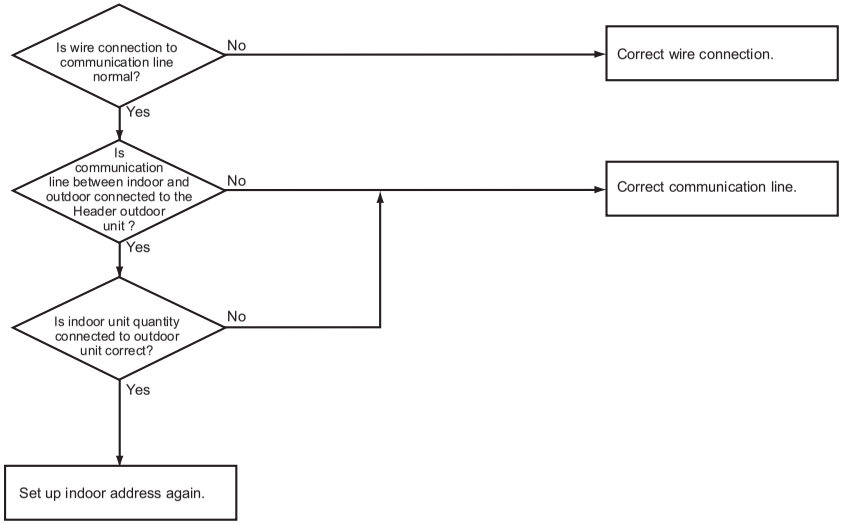
Check code	Check code name	Cause
[E07]	Indoor/Outdoor communication circuit trouble (Detected at outdoor side)	1. Indoor/outdoor communication terminator resistor setup trouble 2. Indoor/outdoor communication connection trouble



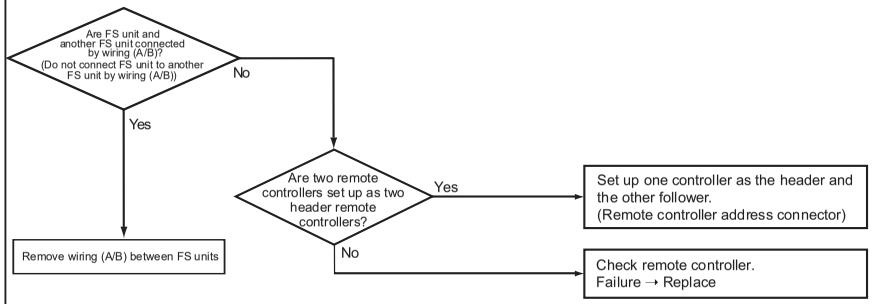
Check code	Check code name	Cause
[E08]	Duplicated indoor addresses	Indoor addresses are duplicated.

Sub-code: Duplicated indoor address

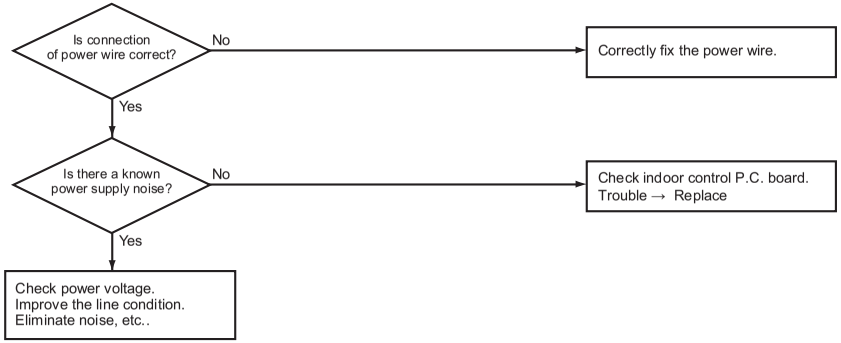
Using a wired remote controller check the setup CODE No. (DN code) 12, 13, and 14.
When there is no address duplication, check to the following flowchart.



Check code	Check code name	Cause
[E09]	Duplicated header remote controller	Setup of header remote controller is duplicated.

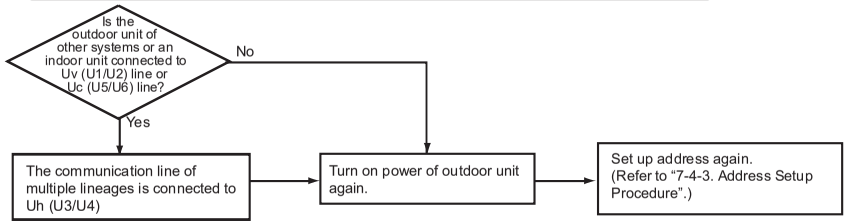


Check code	Check code name	Cause
[E10]	Communication trouble between indoor MCUs.	Indoor P.C. board trouble.



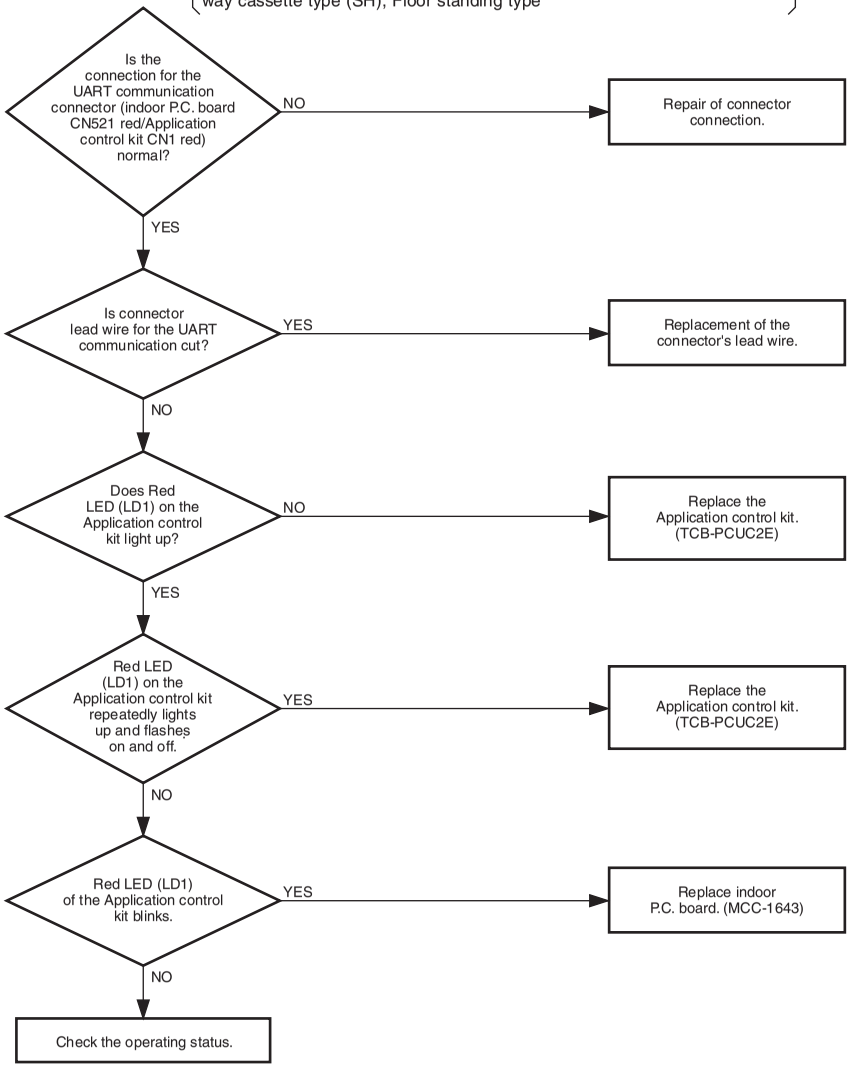
Check code	Check code name	Cause
[E12]	Automatic address start trouble	1. Starting automatic addressing of indoor units during automatic addressing in another refrigerant line. (Sub-code: 01) 2. Starting automatic addressing of outdoor units during automatic addressing of indoor units (Sub-code: 02)

Sub-code: 01: Communication between indoor and outdoor 02: Communication between outdoor units



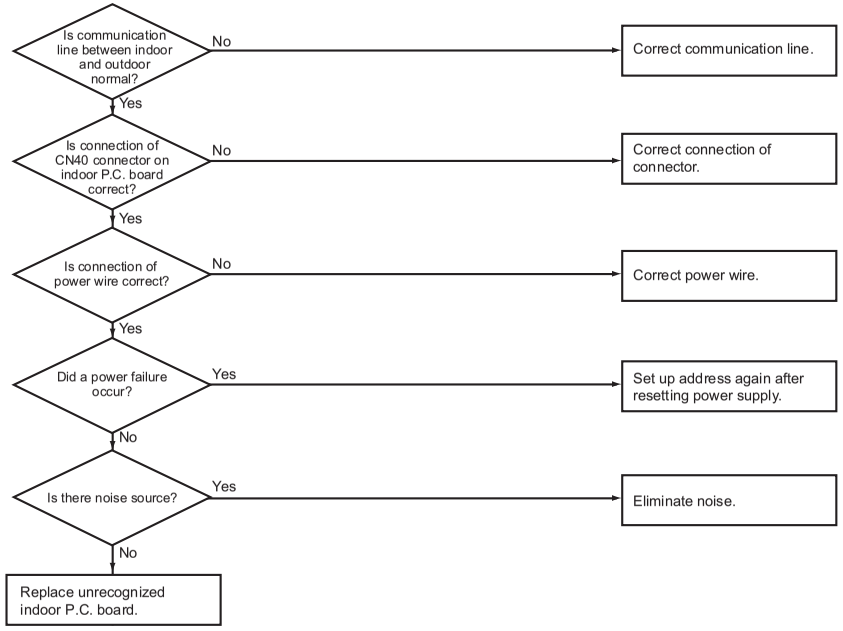
Check code	Check code name	Cause
[E11]	Communication trouble between Application control kit and Indoor unit	1.Application control kit trouble 2. Indoor P.C. board trouble

4-way cassette type, Compact 4-way cassette type 2-way cassette type, 1-way cassette type (SH), Floor standing type



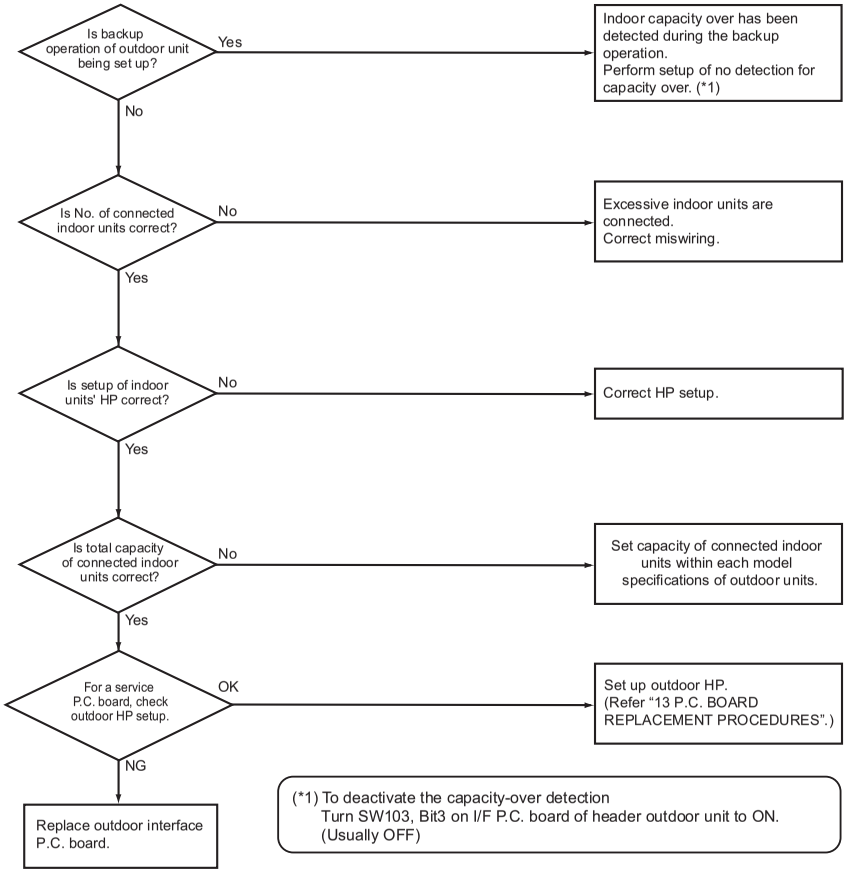
Check code	Check code name	Cause
[E15]	No corresponding indoor unit during automatic address	1. Communication line connection trouble between indoor and outdoor 2. Indoor power system trouble 3. Noise trouble from surrounding devices 4. Power failure 5. Indoor P.C. board trouble

When a trouble occurs even if indoor unit addresses were set after power had been reset, check the following flowchart.



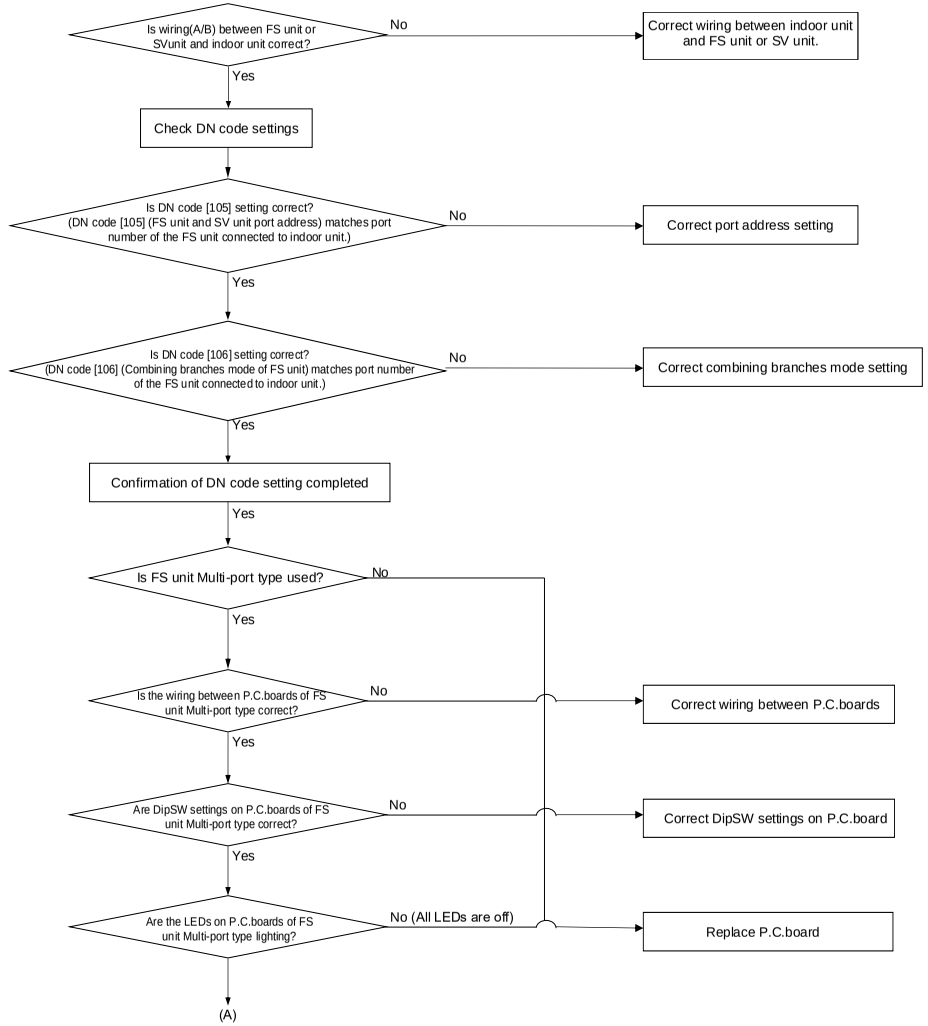
Check code	Check code name	Cause
[E16]	Number/capacity of connected indoor units beyond the limit	1. There are more than 128 connected indoor units. 2. Capacity over of total connected indoor units. 3. Incorrect setup of indoor units' horse power

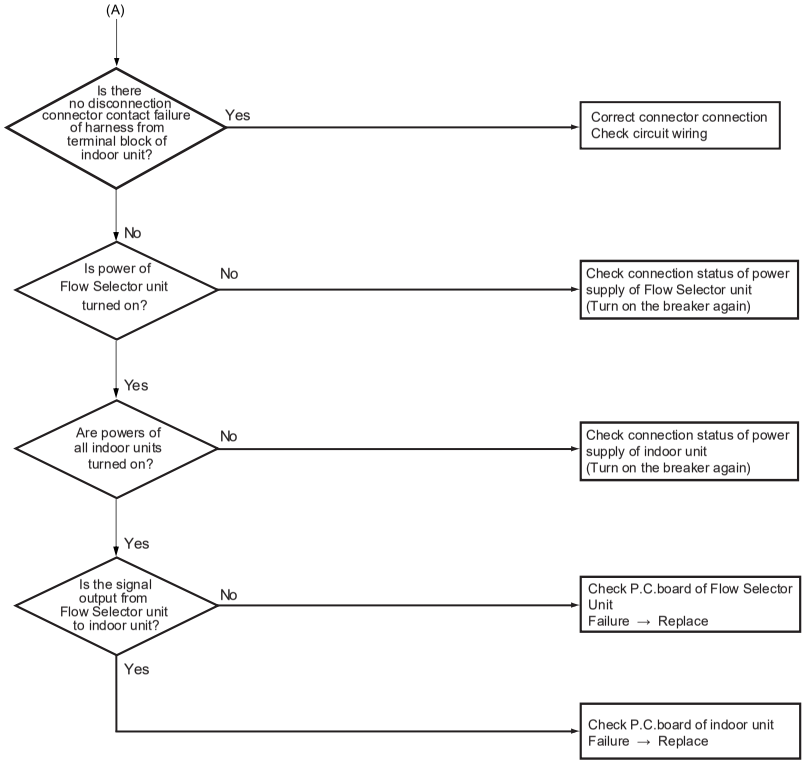
Sub-code: 00 : Capacity over, 01-: number of connected units



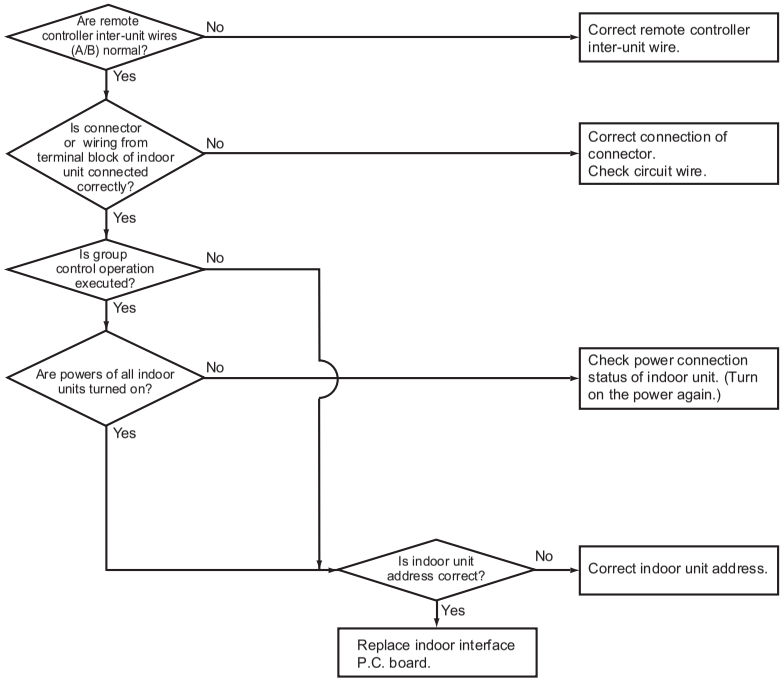
(*1) To deactivate the capacity-over detection
Turn SW103, Bit3 on I/F P.C. board of header outdoor unit to ON.
(Usually OFF)

Check code	Check code name	Cause
[E17]	Indoor units(s)-Flow Selector unit(s) or Shut-off Valve unit(s) communication trouble	1. Power of indoor unit was firstly turned on. 2. Connection trouble of communication line between Flow Selector unit or Shut-off Valve unit and indoor unit. 3. Indoor power trouble 4. Indoor P.C.board trouble 5. Flow Selector unit or Shut-off Valve unit address setup trouble 6. Flow Selector unit or Shut-off Valve unit P.C.board trouble



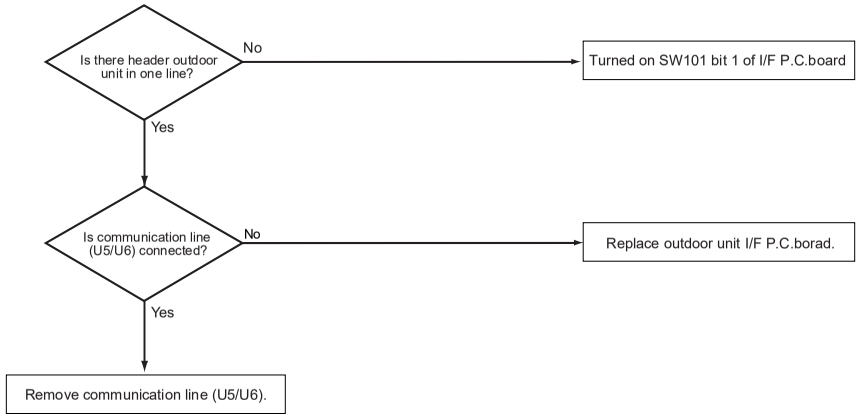


Check code	Check code name	Cause
[E18]	Communication trouble between indoor header and follower	Regular communication between indoor header and follower is unavailable.



Check code	Check code name	Cause
[E19]	Header outdoor unit quantity trouble	1. Misconnection of inter-unit wire between indoor and outdoor 2. Outdoor I/F P.C. board trouble

Sub-code: 00: No header unit 02: Two or more header units

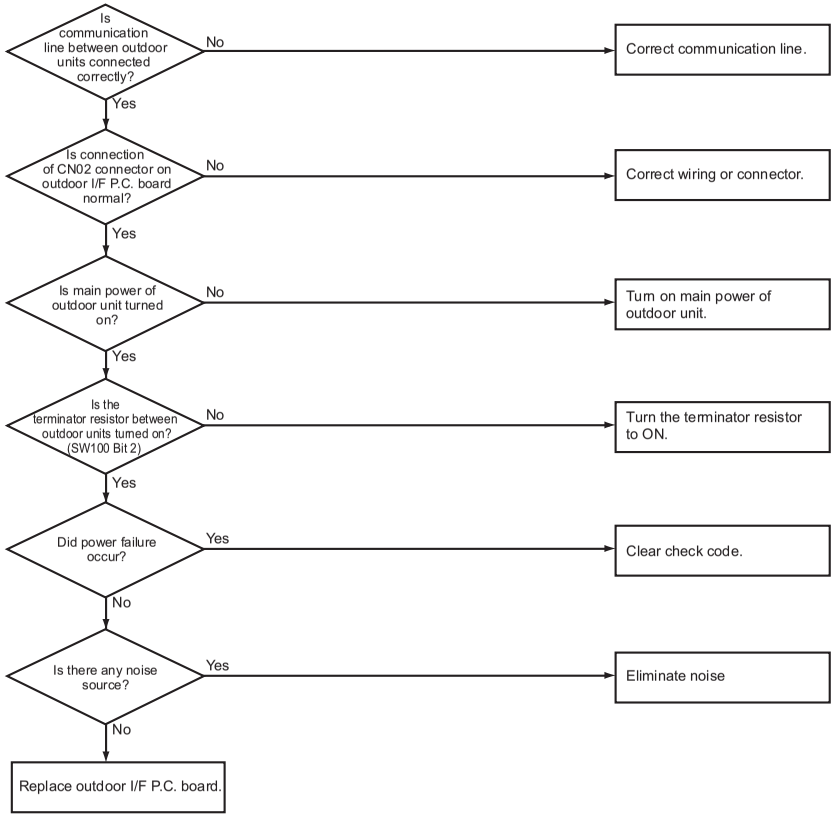


Check code	Check code name	Cause
[E20]	Unit connected to other line during automatic address	When starting automatic indoor address, a device in another line is connected.

Sub-code: 01: Connection of an outdoor unit in another line 02: Connection of an indoor unit in another line

Separate the connection between the lines following the address setup method.

Check code	Check code name	Cause
[E23]	Communication signal sending trouble between outdoor units	1. Inter-unit wire connection trouble between outdoor units 2. Communication connector connection trouble between outdoor units, I/F P.C. board trouble 3. End terminal resistance setup trouble between outdoor units

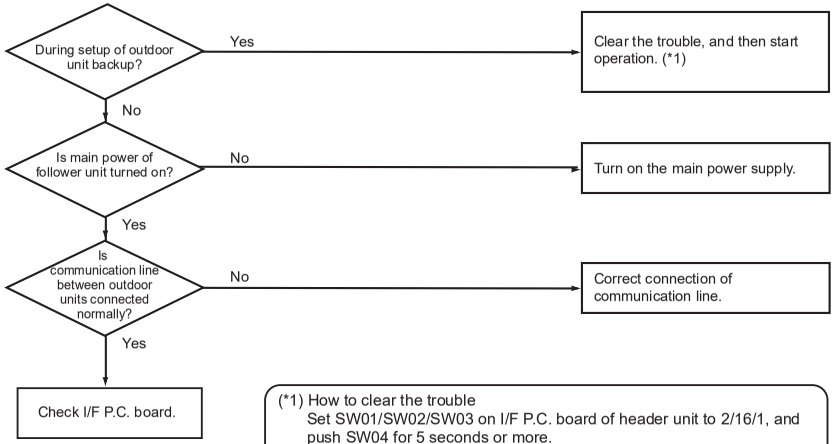


Check code	Check code name	Cause
[E25]	Duplicated follower outdoor address setup	Addresses are duplicated by manual setup of outdoor address

Do not set up outdoor addresses manually.

Check code	Check code name	Cause
[E26]	Decrease of connected outdoor units	1. Outdoor unit backup setup 2. Outdoor power trouble 3. Communication line connection trouble between outdoor units 4. Communication connector connection trouble 5. Outdoor I/F P.C. board trouble

Sub-code: Address of the outdoor unit receiving signal abnormally



(*1) How to clear the trouble
Set SW01/SW02/SW03 on I/F P.C. board of header unit to 2/16/1, and push SW04 for 5 seconds or more.
(7-segment display: [Er.] [CL])

Check code	Check code name	Cause
[E28]	Follower outdoor unit trouble	Trouble has occurred on a follower outdoor unit.

Sub-code: Detected outdoor unit No.

A trouble occurred on a follower unit. See the check code on the 7-segment display on I/F P.C. board of the follower unit, and then check it according to diagnose procedure for the check code.
(How to specify the follower outdoor unit in which trouble occurred)
Push SW04 for 1 second or more under condition that [E28] is displayed on the 7-segment display of the header unit.
The fan of the outdoor unit which stopped due to occurrence of trouble starts rotating. Push SW05 to stop the fan.

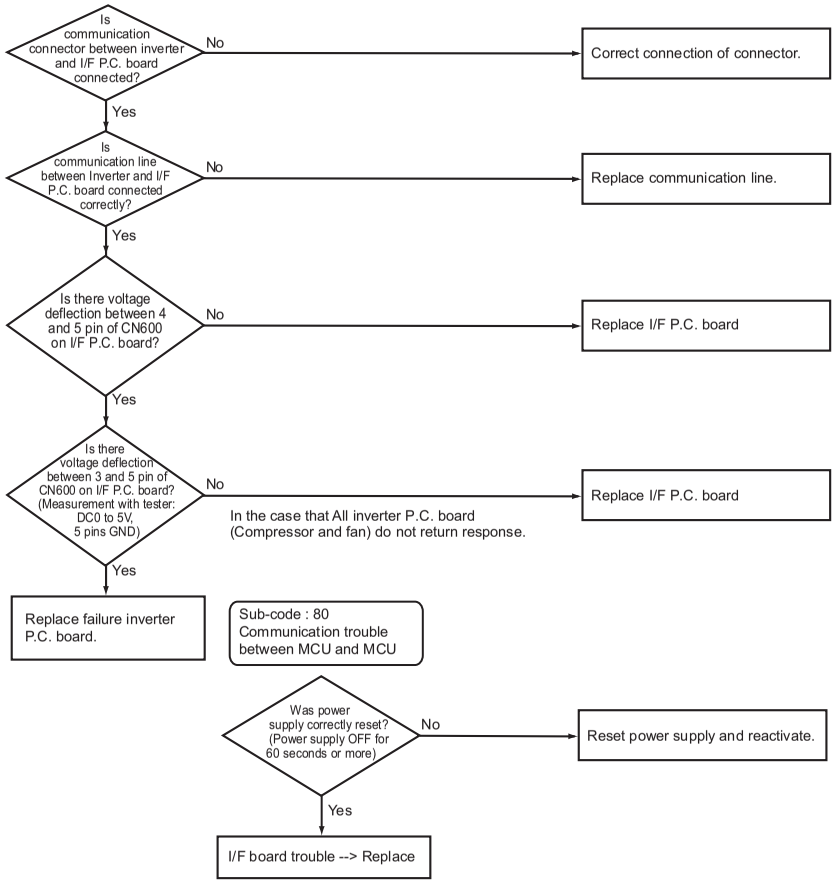
Check code	Check code name	Cause
[E31]	P.C. boards communication trouble	1. Connection trouble of communication line between inverter and I/F P.C. board 2. I/F P.C. board trouble 3. Inverter P.C. board trouble 4. External noise

Sub-code

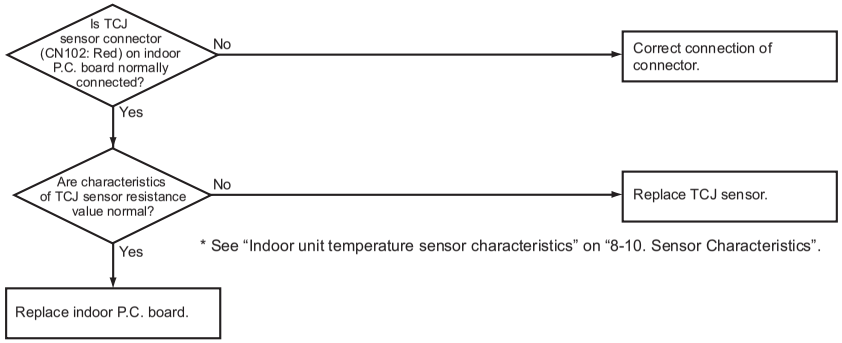
	P.C.board			
	Compressor		Fan Motor	
	1	2	1	2
01	O			
02		O		
03	O	O		
08			O	
09	O		O	
0A		O	O	
0B	O	O	O	
10				O

	P.C.board			
	Compressor		Fan Motor	
	1	2	1	2
11	O			O
12		O		O
13	O	O		O
18			O	O
19	O		O	O
1A		O	O	O
1B	O	O	O	O

Circle (O): Trouble P.C. boards

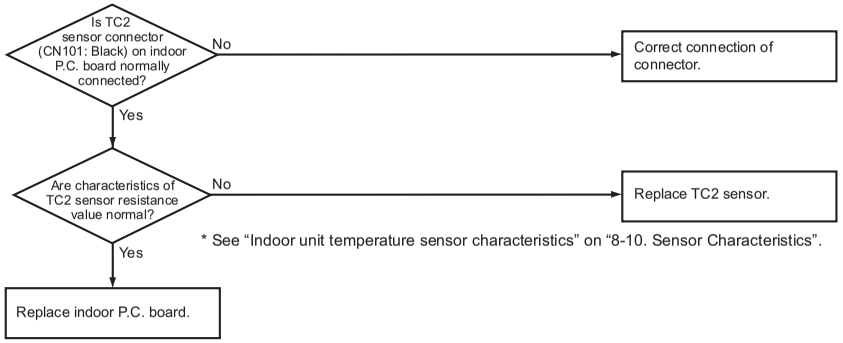


Check code	Check code name	Cause
[F01]	Indoor TCJ sensor trouble	TCJ sensor Open/Short-circuit



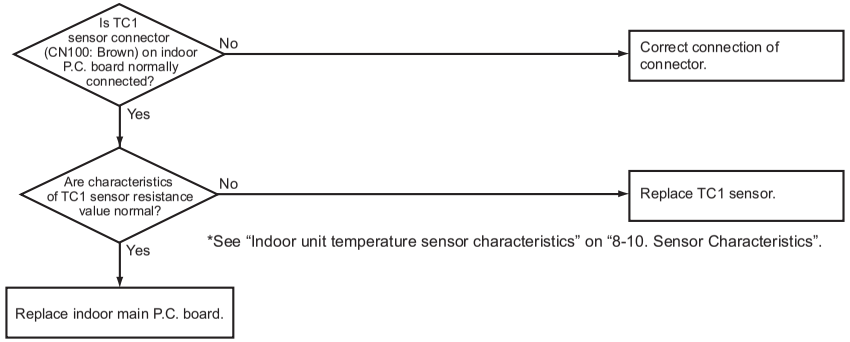
* See “Indoor unit temperature sensor characteristics” on “8-10. Sensor Characteristics”.

Check code	Check code name	Cause
[F02]	Indoor TC2 sensor trouble	TC2 sensor Open/Short-circuit



* See “Indoor unit temperature sensor characteristics” on “8-10. Sensor Characteristics”.

Check code	Check code name	Cause
[F03]	Indoor TC1 sensor trouble	TC1 sensor Open/Short-circuit



*See “Indoor unit temperature sensor characteristics” on “8-10. Sensor Characteristics”.

Check code	Check code name	Cause
[F04]	TD1 sensor trouble	TD1 sensor Open/Short-circuit

This check code means detection of Open/Short-circuit of TD1 sensor.Check disconnection of circuit for connection of connector (TD1 sensor: CN502, White) and characteristics of sensor resistance value. (See “Outdoor unit temperature sensor characteristics” on “8-10. Sensor Characteristics”.)
If sensor is normal, replace outdoor I/F P.C. board.

Check code	Check code name	Cause
[F05]	TD2 sensor trouble	TD2 sensor Open/Short-circuit

This check code means detection of Open/Short-circuit of TD2 sensor.Check disconnection of circuit for connection of connector (TD2 sensor: CN380, Black) and characteristics of sensor resistance value. (See “Outdoor unit temperature sensor characteristics” on “8-10. Sensor Characteristics”.)
If sensor is normal, replace outdoor I/F P.C. board.

Check code	Check code name	Cause
[F06]	TE1,TE2,TE3 sensor trouble	TE1,TE2,TE3 sensor Open/Short-circuit

This check code means detection of Open/Shor-circuit of TE1, TE2 or TE3 sensor. Check disconnection of circuit for connection of connector (TE1 sensor: CN381, White, TE2 sensor : CN381, White, TE3 sensor : CN384, Blue) and characteristics of sensor resistance
value. (See “Outdoor unit temperature sensor characteristics” on “8-10. Sensor Characteristics”.)
If sensor is normal, replace outdoor I/F P.C. board.

Check code	Check code name	Cause
[F07]	TL1,TL2,TL3 sensor trouble	TL1,TL2,TL3 sensor Open/Short-circuit

Sub-code: 01:TL1, 02;TL2, 03;TL3

This check code means detection of Open/Short-circuit of TL1,TL2,TL3 sensor. Check disconnection of circuit for connection of connector (TL1, 2, 3 : CN378 White) and characteristics of sensor resistance value.
(See“Outdoor unit temperature sensor characteristics” on “8-10. Sensor Characteristics”.)
If sensor is normal, replace outdoor I/F P.C. board.

Check code	Check code name	Cause
[F08]	TO sensor trouble	TO sensor Open/Short-circuit

This check code means detection of Open/Short-circuit of TO sensor. Check disconnection of circuit for connection of connector (TO sensor: CN507,Yellow) and characteristics of sensor resistance value. (See “Outdoor unit temperature sensor characteristics” on “8-10. Sensor Characteristics”.)
If sensor is normal, replace outdoor I/F P.C. board.

Check code	Check code name	Cause
[F09]	TG1, TG2, TG3 sensor trouble	TG1, TG2, TG3 sensor Open/Short-circuit

Sub-code: 01: TG1, 02: TG2, 03:TG3

This check code means detection of Open/Short-circuit of TG1, TG2, TG3 sensor. Check disconnection of circuit for connection of connector (TG1, TG2 sensor : CN381, White, TG3 sensor: CN384, Blue) and characteristics of sensor resistance value.
(See "Outdoor unit temperature sensor characteristics" on "8-10. Sensor Characteristics".)
If sensor is normal, replace outdoor I/F P.C. board.

Check code	Check code name	Cause
[F10]	Indoor TA/TSA sensor trouble	TA sensor Open/Short-circuit

This check code means detection of Open/Short-circuit of TA sensor. Check disconnection of circuit for connection of connector (TA /TSA sensor : CN104, Yellow) and characteristics of sensor resistance value. (See “Indoor unit temperature sensor characteristics” on “8-10. Sensor Characteristics”.)
If sensor is normal, replace indoor P.C. board.

Check code	Check code name	Cause
[F12]	TS1, TS2, TS3 sensor trouble	TS1, TS2, TS3 sensor open/short-circuit

Sub-code: 01:TS1, 02:TS2, 03:TS3

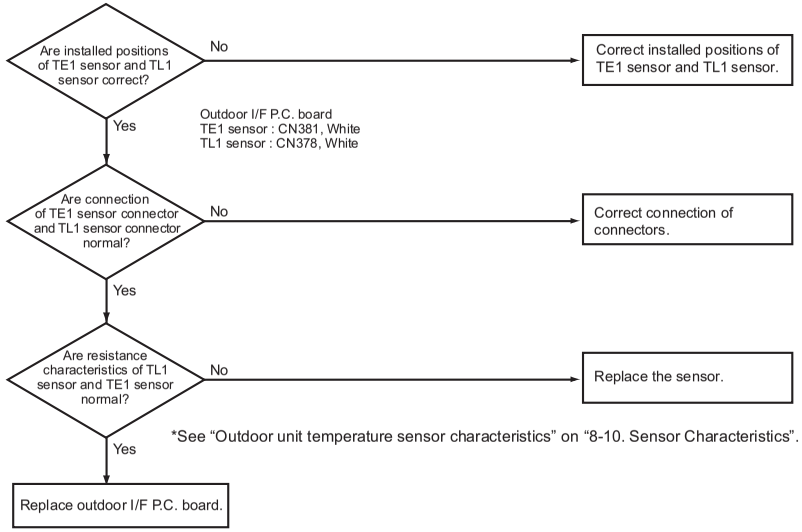
This is detection of open/short-circuit . Check disconnection of circuit for connection of connector
(TS1,TS3 sensor: CN378 White, TS2 sensor:CN506 Black) and resistance characteristics of sensor.
(See "Outdoor unit temperature sensor characteristics" on "8-10. Sensor Characteristics".)
If sensor is normal, replace outdoor I/F P.C.board.

Check code	Check code name	Cause
[F13]	TH sensor trouble	IPM built-in sensor trouble in compressor P.C. board

Sub-code: 1*: Compressor 1, 2*: Compressor 2

This check code means IPM built-in temperature sensor trouble.
Replace compressor P.C. board.

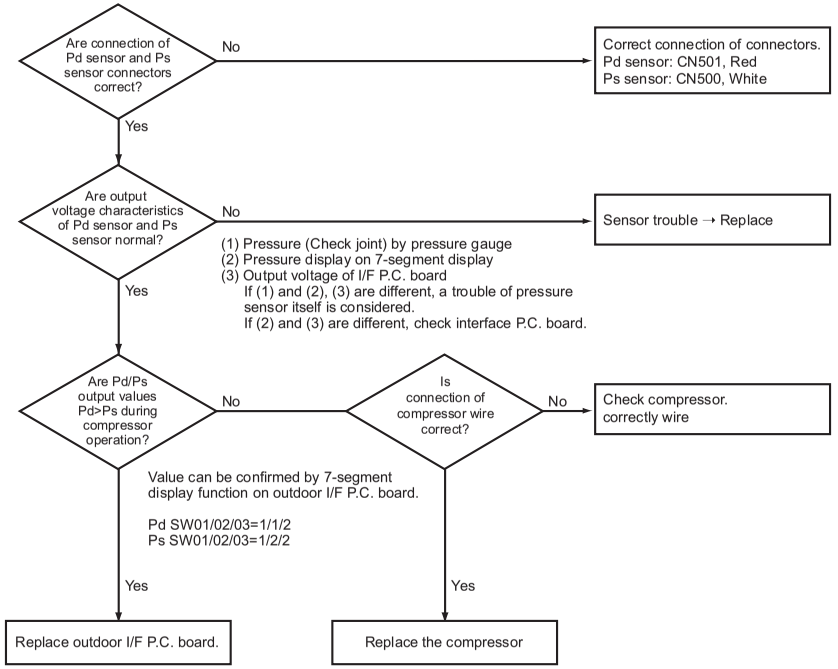
Check code	Check code name	Cause
[F15]	Outdoor temp sensor miswiring (TE1, TL1)	1. Misinstallation and misconnection of TE1 sensor and TL1 sensor 2. Resistance characteristics trouble of TE1 sensor and TL1 sensor 3. Outdoor P.C. board (I/F) trouble



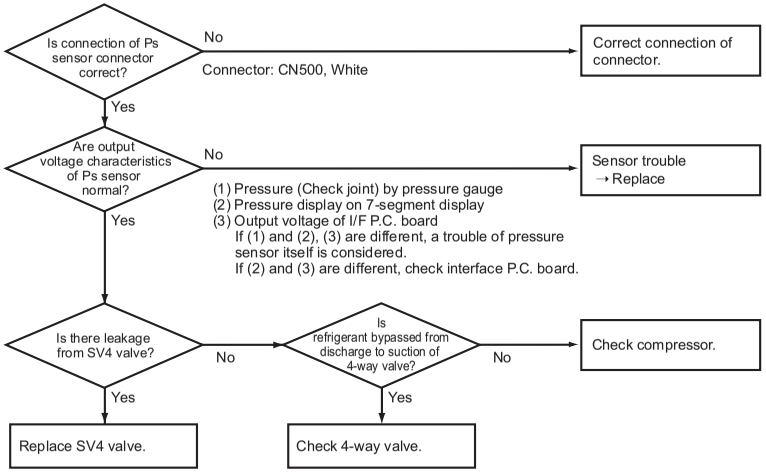
*See “Outdoor unit temperature sensor characteristics” on “8-10. Sensor Characteristics”.

TE1 sensor: Outdoor heat exchanger temp sensor
TL1 sensor: Sensor between PMV1 and subcool heat exchanger

Check code	Check code name	Cause
[F16]	Outdoor pressure sensor miswiring (Pd, Ps)	1. High-pressure Pd sensor and low pressure sensor Ps are exchanged. 2. Output voltage of each sensor is zero.



Check code	Check code name	Cause
[F23]	Ps sensor trouble	1. Output voltage trouble of Ps sensor 2. SV4, 4-way valve trouble



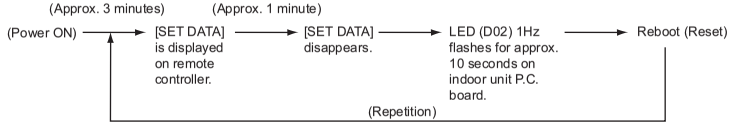
Check code	Check code name	Cause
[F24]	Pd sensor trouble	Output voltage trouble of Pd sensor

It is output voltage trouble of Pd sensor. Check disconnection of connection of connector (Pd sensor: CN501, red) circuit and output voltage of sensor.
If the sensor is normal, replace outdoor I/F P.C. board.

Check code	Check code name	Cause
[F29]	Indoor other trouble	Indoor P.C. board trouble

This trouble is detected during operation of air conditioner of IC10 non-volatile memory (EEPROM) on indoor unit P.C.board. Replace service P.C. board.

* If EEPROM was not inserted when power was turned on or it is absolutely impossible to read/write EEPROM data, the automatic address mode is repeated.

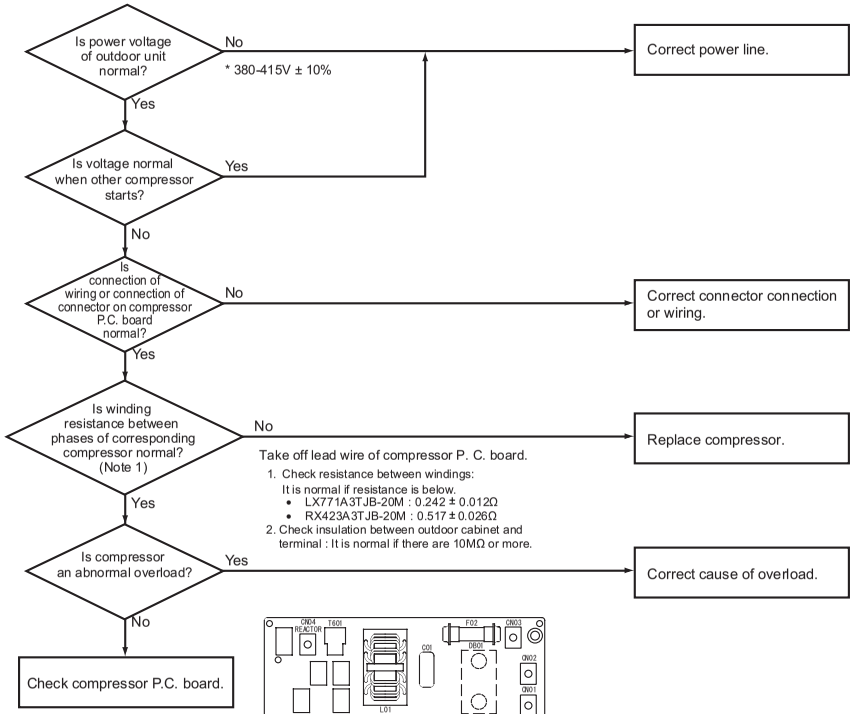


Check code	Check code name	Cause
[F31]	Outdoor EEPROM trouble	1. Outdoor unit power trouble (Voltage, noise, etc.) 2. Outdoor I/F P.C. board trouble



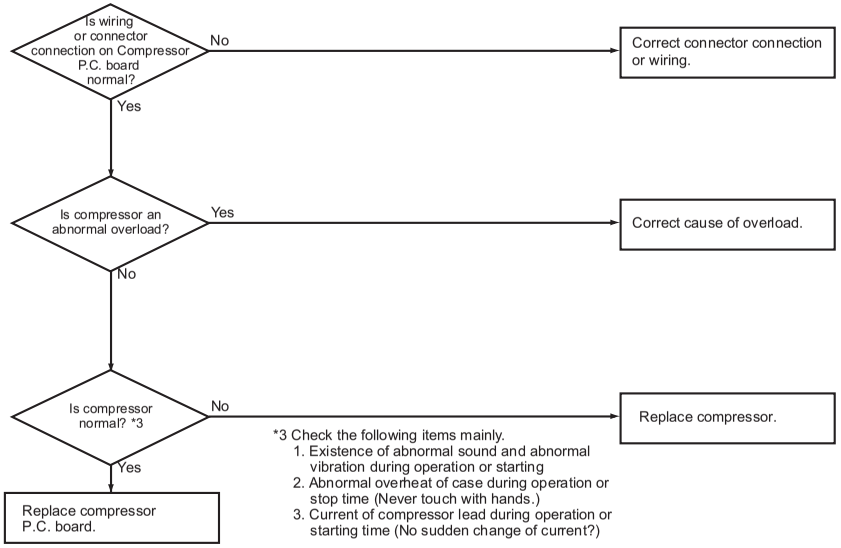
Check code	Check code name	Cause
[H01] [H17]	Compressor breakdown Rotor-stop power distribution has occurred. Judged that the synchronization could not be taken.	1. Outdoor unit power line trouble 2. Compressor circuit system trouble 3. Compressor trouble 4. Abnormal overload in operation 5. Compressor P.C. board trouble

Sub-code:
1∗: Compressor 1,
2∗: Compressor 2



Check code	Check code name	Cause
[H02]	Compressor trouble (Lock)	1. Compressor circuit system trouble 2. Compressor trouble 3. Compressor P.C. board trouble

Sub-code:
1∗: Compressor 1,
2∗: Compressor 2

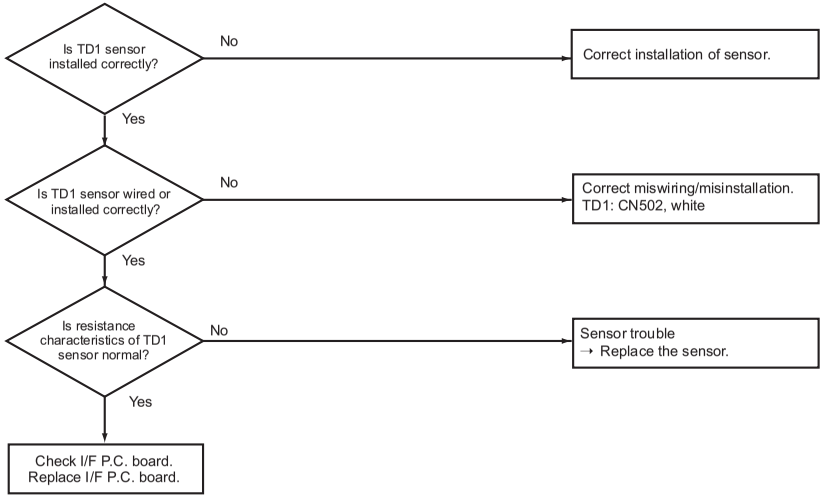


Check code	Check code name	Cause
[H03]	Current detective circuit system trouble	1. Wiring or connector connection trouble on compressor P.C. board 2. compressor P.C. board trouble

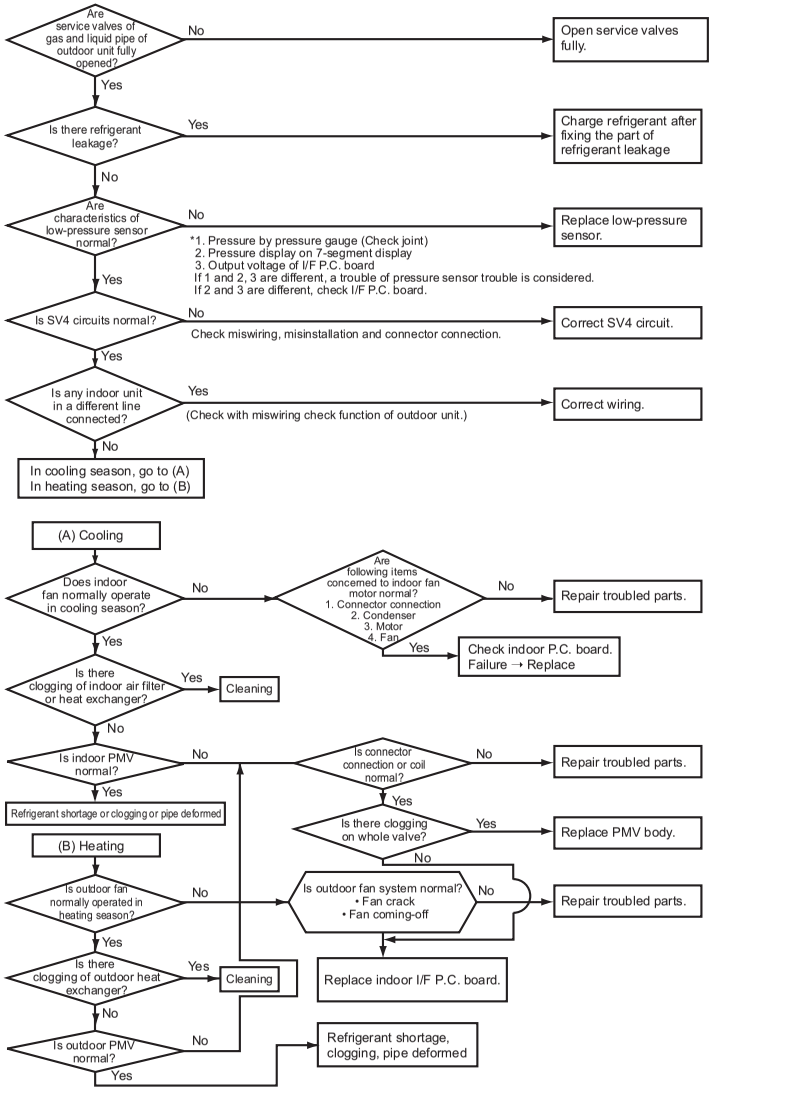
Sub-code:
1∗: Compressor 1,
2∗: Compressor 2



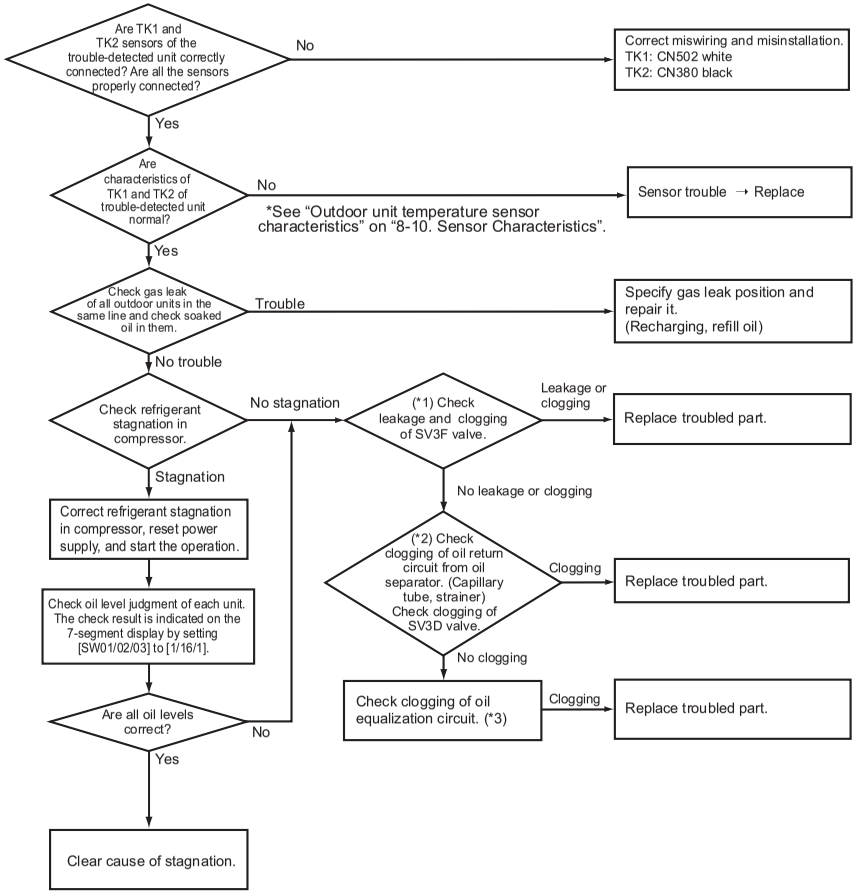
Check code	Check code name	Cause
[H05]	Outdoor discharge temperature sensor (TD1) misconnection	1. Coming-off of TD1 sensor 2.Misinstallation of TD1 sensor, miswiring, characteristics trouble of resistance value



Check code	Check code name	Cause
[H06]	Low-pressure protective operation	1. Service valve close 2. Ps sensor trouble 3. SV4 circuit trouble 4. Miswiring of communication between indoor and outdoor 5. Indoor/outdoor fan and condenser trouble 6. Indoor/outdoor PMV clogging 7. Indoor/outdoor heat exchanger clogging 8. Refrigerant shortage



Check code	Check code name	Cause
[H07]	Oil level down detection protection	1. Miswiring or misinstallation of TK1 and TK2 sensor. 2. TK1 and TK2 sensor trouble 3. Gas leak or oil leak in a line 4. Refrigerant stagnation of compressor case 5. SV3D valve trouble 6. Clogging of oil return circuit from oil separator 7. Clogging of oil-equation circuit system



Indoor/outdoor PMV trouble (Cause of refrigerant stagnation), discharge check valve trouble, etc.

(Reference) When refrigerant stagnates in compressor shell, the oil level shortage may be

In some cases, it may be difficult to check the leakage of clogging in the following condition of refrigerant stagnation in low ambient temperature condition.
In this case, take a longer operating time prior to check.
(Criterion: Discharge temperature of TD1 and TD2 are 60°C or higher)

(*1) Checking leakage and clogging on SV3F valve

a) Leakage check

- Turn off the power supply, take off connector of SV3F valve, and then start a test operation after power ON.
- After operation for several minutes, check temperature at secondary side of SV3F valve.((1) in the figure)
  → If temperature is low, leakage occurs in the SV3F valve.
  Replace SV3F valve.

b) Clogging check

- While outdoor unit is operating, set up SW01/02/03=[2] [1] [3] (7-segment display [Hr] [... ... ...]), and push SW04 for 2 seconds or more.
- Set up Sw02=[8], and turn on SV3F valve. (7-segment display [Hr] [... 3C])
- While outdoor units are operating, check temperature change at secondary side of SV3F valve. ((1) in the figure.)
  → If temperature does not drop (equivalent to outside air temperature), it is a clogging of SV3F valve.
  Replace SV3F valve.

(*2) Checking the oil return circuit from oil separator and clogging in SV3D valve

a) Oil return circuit

- While outdoor unit is operating, check temperature (secondary side of capillary) on oil return circuit. ((2) in the figure.)
  → If temperature is low equivalent to suction temperature), a clogging of strainer of oil return circuit or capillary is considered. Replace the clogged part.

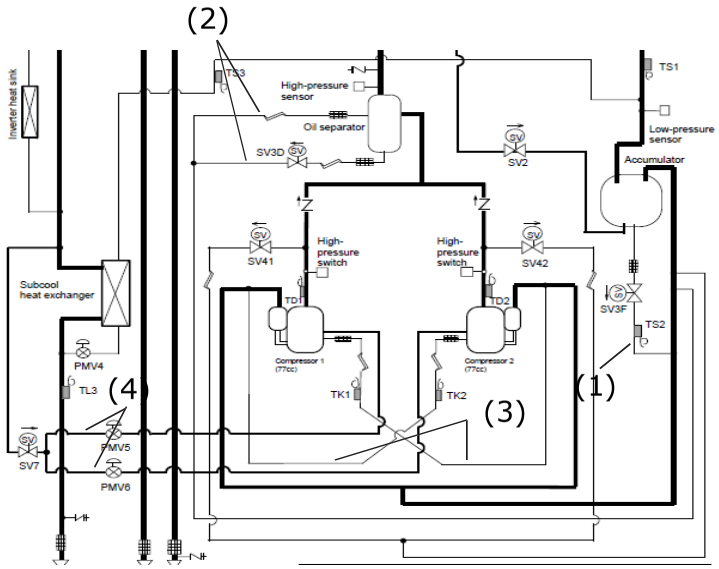
b) Clogging check for SV3D valve

- While outdoor unit is operated, set up SW01/02/03 = [2] [1] [3] (7-segment display [Hr] [... ... ...]), and push SW04 for 1 seconds or more.
- Set up SW02 = [4], and turn on SV3D valve. (7-segment display [Hr] [... 3 d])
- If temperature is low at secondary side of the valve or it does not change, clogging of valve, capillary, or strainer is considered. ((3) in the figure.) Replace the clogged part.

(*3) Checking the oil equalization circuit

a) Clogging check for oil-equalization circuit

- Drive the outdoor unit. (Drive all compressors in the unit.)
- After driving for 10 minutes or more, check whether temperature of TK1, TK2 sensors and temperature of oil-equalization circuit capillary ((4) in the figure) has increased.
  (Criterion)
  TK1, TK2=Td1, Td2 temperature - Approx. 10 to 30°C
  Oil-equalization capillary tubes should be higher sufficiently than outside air temperature and suction temperature.
- If temperature is low, clogging of capillary or strainer is considered. Repair the failure parts.



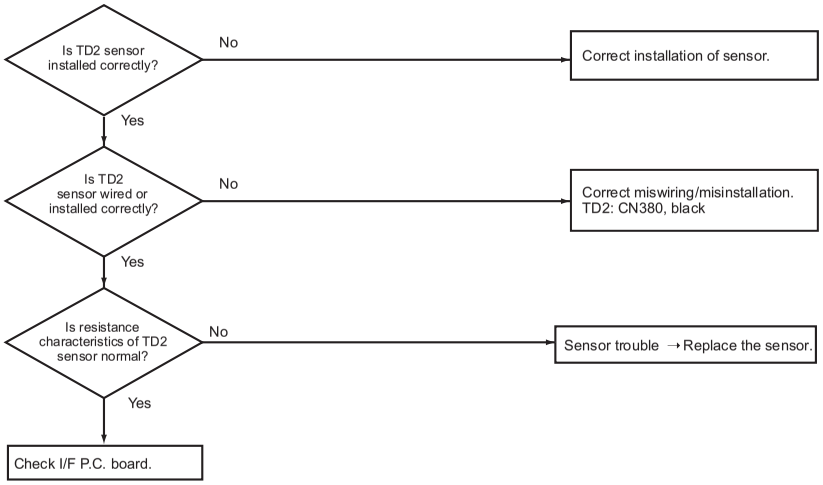
Check code	Check code name	Cause
[H08]	Oil level detective temperature sensor trouble	TK1 and TK2 sensor Open/Short-circuit

Sub-code:
01: TK1 sensor trouble 02: TK2 sensor trouble

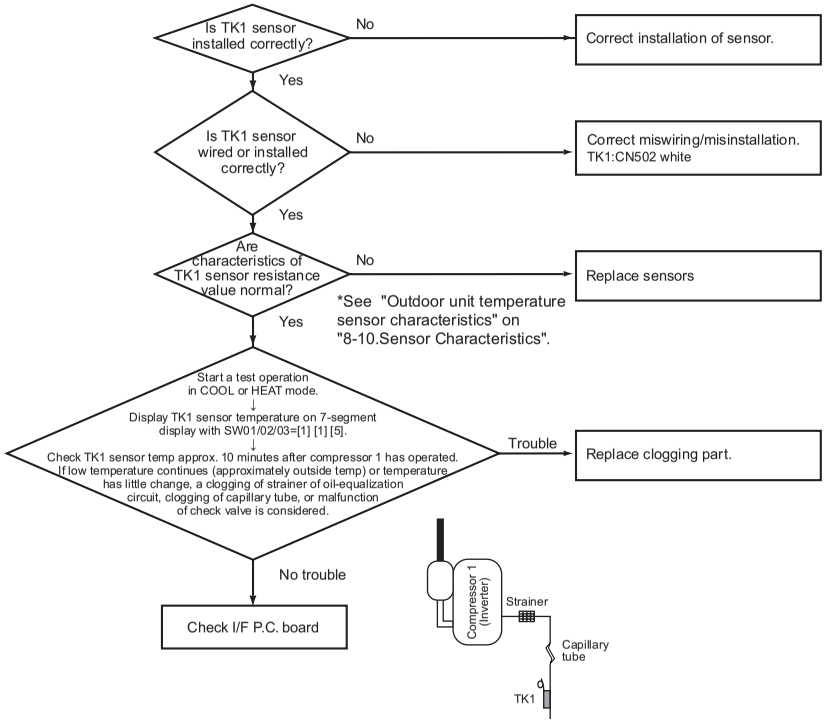
The detected trouble is an oil level detective temperature sensor trouble. Check disconnection of the wiring and resistance value of the sensor.
If the sensors are normal, replace the outdoor I/F P.C. board.

Circuit	Connector
TK1	CN502 white
TK2	CN380 black

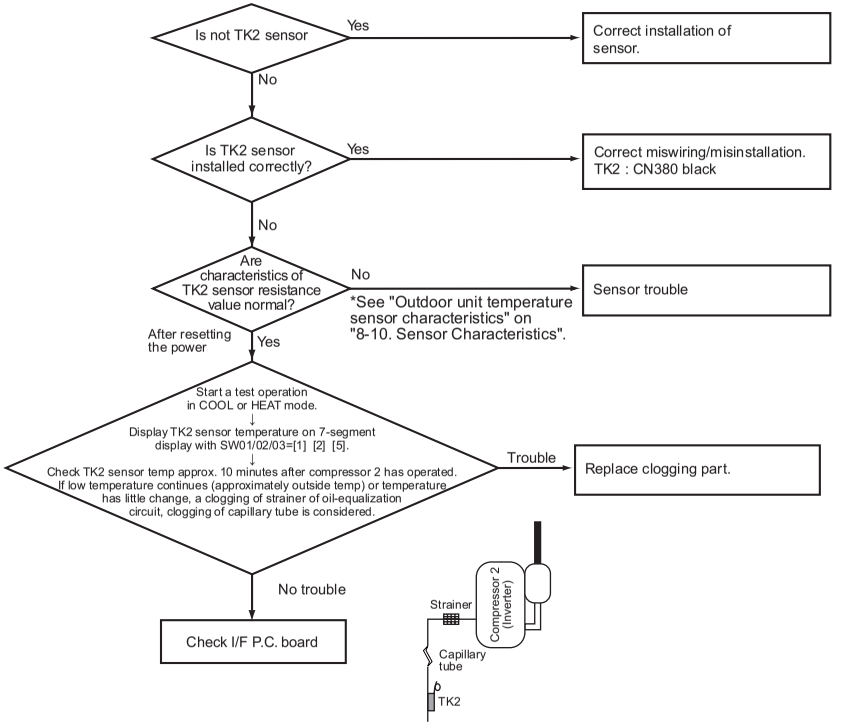
Check code	Check code name	Cause
[H15]	Outdoor discharge temperature sensor (TD2) misconnection	1. Coming-off of TD2 sensor 2. Misinstallation of TD2 sensor, miswiring, characteristics trouble of resistance value



Check code	Check code name	Cause
[H16]	Oil level detection circuit trouble TK1 temperature detective circuit trouble (Sub-code: 01)	1. Coming-off of TK1 sensor, miswiring, characteristics trouble of resistance value 2. Oil-equalization circuit trouble (Check valve, capillary clogging, strainer clogging) 3. Refrigerant stagnation in the compressor shell



Check code	Check code name	Cause
[H16]	Oil level detection circuit trouble TK2 temperature detective circuit trouble (Sub-code: 02)	1. Coming-off of TK2 sensor, miswiring, characteristics trouble of resistance value 2. Oil-equalization circuit trouble (Check valve, capillary clogging, strainer clogging) 3. Refrigerant stagnation in the compressor shell

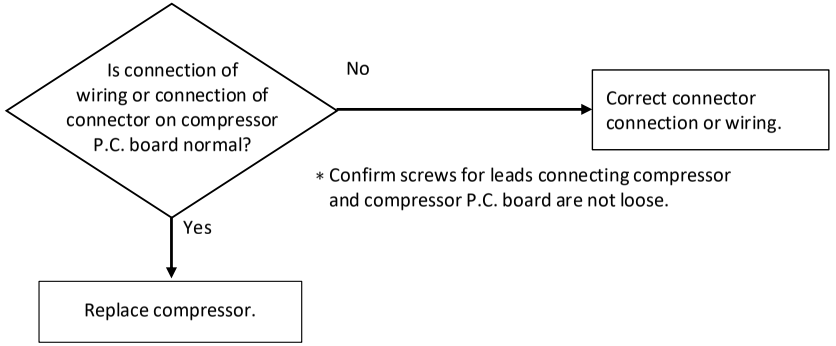


Check code	Check code name	Cause
[H17]	Compressor trouble (step-out etc.)	The clause of [H01] is referred to.

Refer to the clause of [H01] for a diagnostic procedure.

Check Code	Check code name	Cause
[H28]	Compressor motor winding trouble.	1. Compressor trouble.

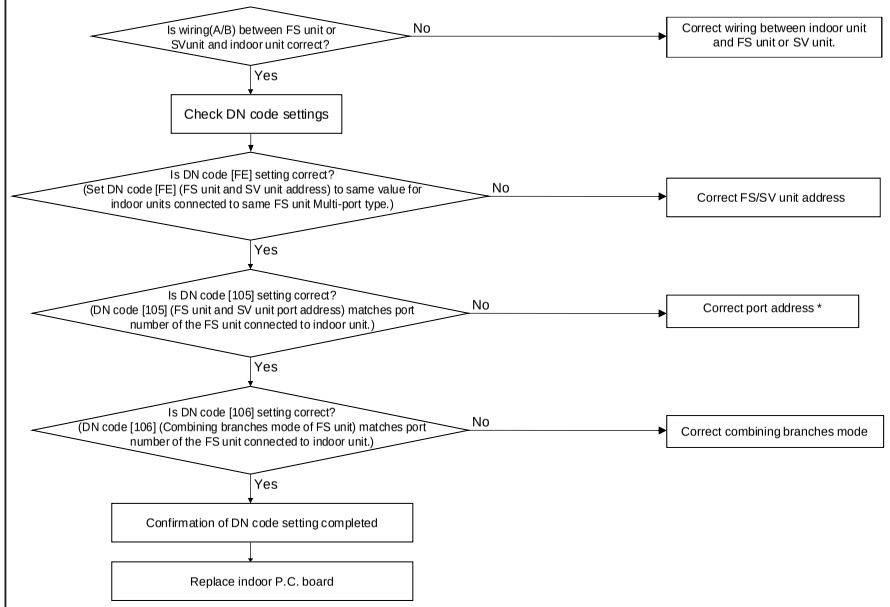
Sub-code:
1∗: Compressor 1, 2∗: Compressor 2



∗ Confirm screws for leads connecting compressor and compressor P.C. board are not loose.

Check code	Check code name	Cause
[J01]	Communication trouble between indoor unit and Flow Selector unit	FS unit not receiving signal from indoor unit(s)

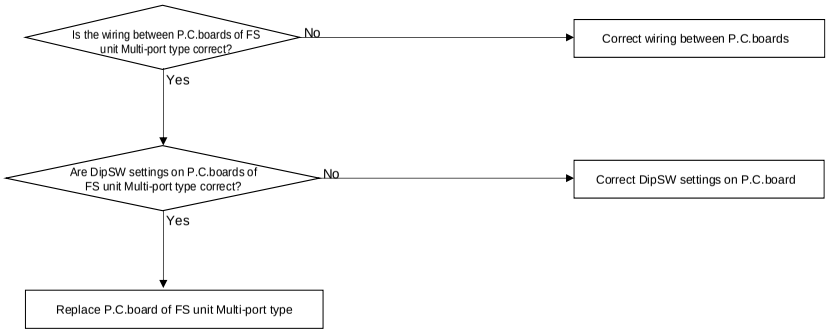
Note:
This check code is for FS unit Multi-port type only, and is not displayed on the remote controller and central control device under normal conditions.
If J01 check code is displayed them, there is a possibility of misconfiguration of DN code [FE], [105], [106] or miswiring between indoor unit and FS unit.



* When setting DN code [105] to value greater than number of ports on FS unit, J01 will be displayed until the power of FS unit is turned off even if set the correct setting.
(Example: DN code [105] is set to 5 or more for 4-branch type, 9 or more for 8-branch type)
If battery kit is connected to FS unit,the power of FS-unit will be turned off after 15 minutes or disconnecting the connector of the battery kit.

Check code	Check code name	Cause
[J02]	Communication trouble between control boards in Flow Selector unit	Communication trouble between P.C.boards of FS unit Multi-port type.

Note:
This check code is for FS unit Multi-port type only.
J02 is displayed on indoor unit connected to port 1 or port 2 of the FS unit multi -port type, and indoor unit connected to other ports displays " ⏻ ".
Also, this check code may disappear when the power is turned off and then turned on again.



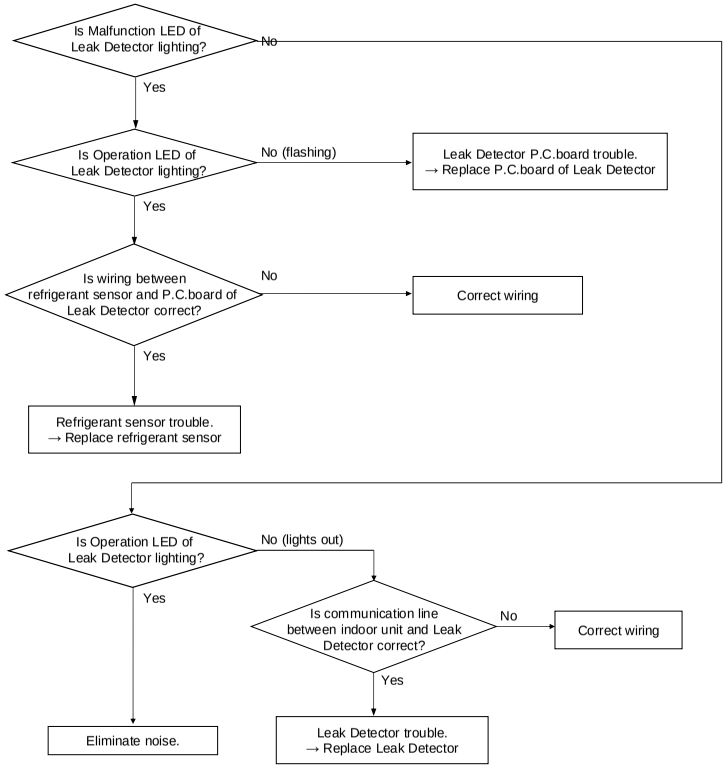
After repair is completed, power of FS unit must be turned off and then turned on again.
If battery kit is connected to FS unit,the power of FS-unit will be turned off after 15 minutes or disconnecting the connector of the battery kit.

Caution:
After repairs are completed, be sure to perform a test run in both cooling operation and heating operation to confirm that cool air or warm air flows.
If cold or warm air does not flow, there may be a problem with the board-to-board communication lines or PMV coils wiring of FS unit.

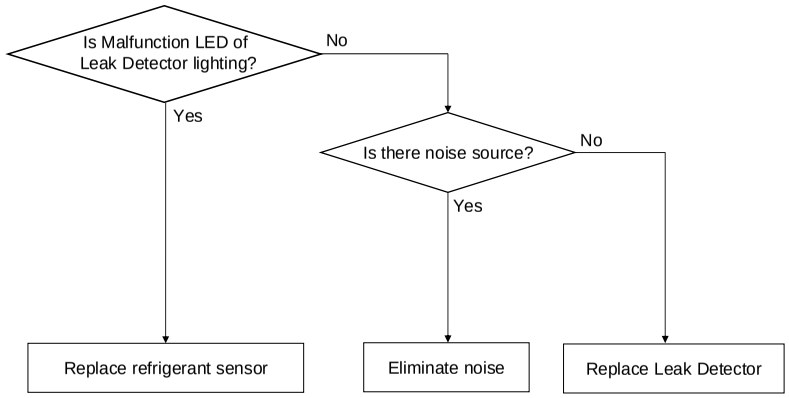
Check code	Check code name	Cause
[J03]	Duplication of Flow Selector units or Shut-off Valve units	Multiple Flow Selector units are installed in one indoor unit.

The check code is detected when there are multiple P.C.boards of the Flow Selector unit or Shut-off Valve unit in one system of the communication line(A/B).

Check code	Check code name	Cause
[J29]	Leak Detector trouble	1. Communication connection trouble between indoor unit and Leak Detector 2. Refrigerant sensor trouble 3. Leak Detector P.C.board trouble

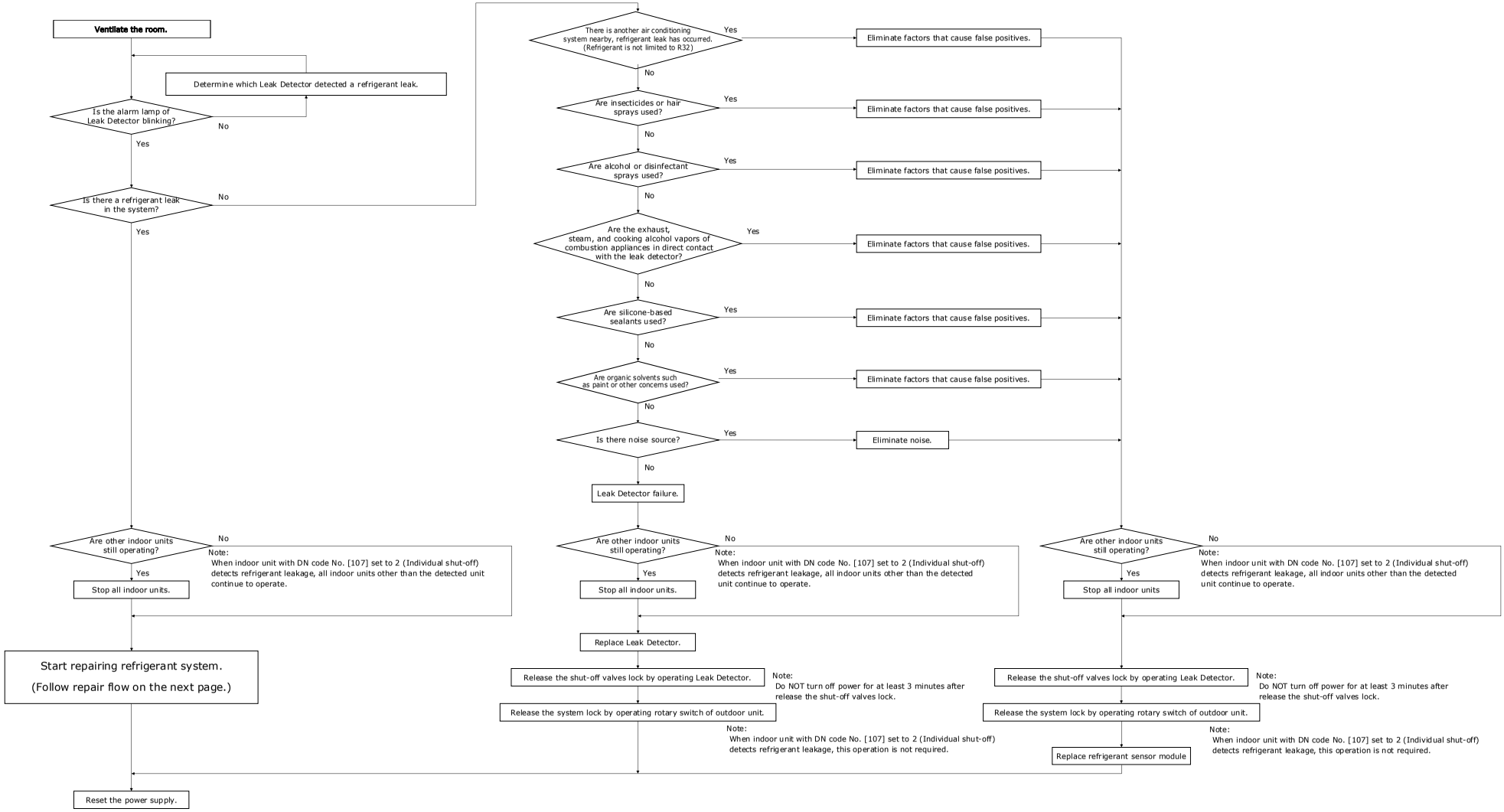


Check code	Check code name	Cause
[J31]	Refrigerant leak detection sensor exceeding its life of the product	Refrigerant sensor trouble (Exceeding its life of the product)



Check code	Check code name	Cause
[J30]	Refrigerant leak detection	1. Refrigerant leak detection

Caution:
Do NOT turn off power until the diagnosis is complete excluding when replacing the leak detector.



Recovery method after refrigerant leakage detection (repair flow)

This product has a function to lock shut-off valve and system when refrigerant leakage is detected.
While shut-off valve is locked, shut-off valve of FS unit or SV unit is closed and fixed, and compressor cannot start operating while system is locked.
Follow this repair flow to repair and release lock.

Caution:
- Please **ventilate thoroughly** before operating, it can be dangerous if the refrigerant is stagnant.

Note:
- Start repairing with the system power turned ON.
- Check DN code No. [107] setting. (Leak Detector sounds again, and please stop it again refer to "8-11. System operation when the Leak Detector detects refrigerant leak.".)

(1) Recovering refrigerant.
↓
(2) Determine which Leak Detector detected a refrigerant leak.
↓
(3) Determine which indoor unit occurred a refrigerant leak.
↓
(4) Release the shut-off valves lock.
↓
(5) Recovering refrigerant.
↓
(6) Repair the refrigerant leak point.
↓
(7) Airtightness test.
↓
(8) Vacuum drying.
↓
(9) Charging refrigerant.
↓
(10) Release the system lock.
↓
(11) Replace refrigerant sensor module.
↓
(12) Test run.

(1) Recovering refrigerant.
Refrigerant should be collected before release the shut-off valves lock described below.
The refrigerant may leak again from the part where the refrigerant leaked, which may become dangerous.

(2) Determine which Leak Detector detected a refrigerant leak.
When Leak Detector detects a refrigerant leak, alarm lamp is blinking. (1 Hz)

(3) Determine which indoor unit occurred a refrigerant leak.

(4) Release the shut-off valves lock by operating Leak Detector. *
With sufficient ventilation, release the shut-off valves lock.
Push and hold the alarm lamp button and reset button of Leak Detector at the same time for at least 5 seconds, and release after that. (Please push the reset button using a tool such as a precision screwdriver)
The following actions are performed:
- Leak Detector makes a sound of "beep, beep, beep, beeeeeep"
- The shut-off valves that was locked will be released. (All shut-off valves lock in the system will be released within 3 minutes. **Do NOT turn off power until operation is completed**.)

After release the shut-off valves lock, reset system power. When DN code [107] set to 1 or 3, the shut-off valve will not open until power is reset.
When a system power reset, Malfunction LED of Leak Detector will turn ON and Notice code is displayed on remote controller.

Caution:
After release the shut-off valves lock, refrigerant remaining downstream side of the shut-off valves may flow from leakage point. (Especially, when DN code [107] set to 3, some refrigerant remains.)
When refrigerant leakage continues, close the shut-off valve connected to leak point. (Close PMV-L, PMV-S, and PMV-D).
Refer to "7-7-7. Pulse Motor Valve (PMV) Forced Open/Close Function in FS unit and shut-off valve unit" for how to operate the shut-off valves.

* Perform this release operation even if the system is only connected to the indoor unit with the indoor unit DN code No. [107] set to 3 "Leak Detector only".
* The release operation should be performed on all Leak Detectors that detected refrigerant leakage.

(5) Recovering refrigerant. (Again)
After release the shut-off valves lock, check refrigerant pressure. If pressure is rising, recover refrigerant again.

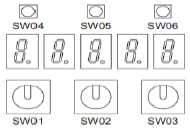
(6) Repair the refrigerant leak point.
Turn OFF system power and repair leakage point, or replace indoor unit. After repair is completed, turn ON system power.

(7) Airtightness test.

(8) Vacuum drying.

(9) Charging refrigerant

(10) Release the system lock.
Be sure to perform this operation after release the shut-off valves lock.
Set the rotary switch [SW01/SW02/SW03] on the I/F board of the outdoor unit to [2/1/9].
7-segment display: [o. U. L o c] (While system is locked.)
[o. U. ... ...] (Others.)
Push and hold SW05 more than 5 seconds, system lock is released.
7-segment display: [o. U. ... C L] (display for 5 seconds)

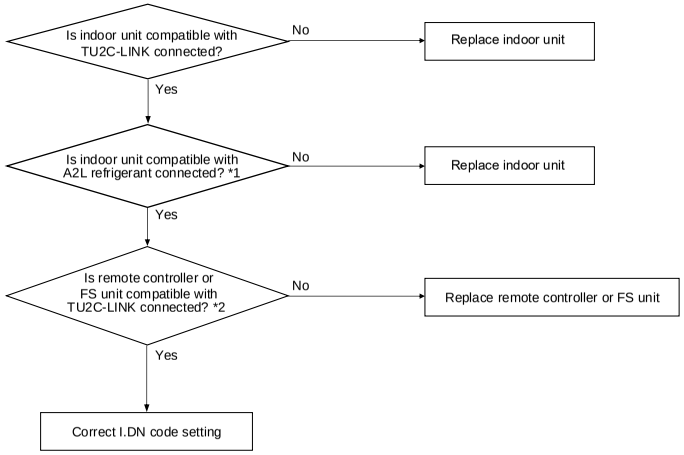


(11) Replace refrigerant sensor module in Leak Detector.
After a sufficient amount of ventilation, replace the refrigerant sensor module.
Refrigerant sensor will become unusable once it has been exposed to refrigerant. (Not limited to R32)
If more than one Leak Detector detects a refrigerant leak, replace refrigerant sensor module of all detected Leak Detectors.
After replacing refrigerant sensor module, confirm that Malfunction LED is turned off and Notice code is cleared.

(12) After completing all the work, system power reset and start test run.

Remarks: How to manual system lock.
This product has a function to manual system lock.
Set the rotary switch [SW01/SW02/SW03] on the I/F board of the outdoor unit to [2/1/9].
Push and hold SW04 more than 5 seconds, system is locked.
To release manual system lock, push and hold SW05 more than 5 seconds.

Check code	Check code name	Cause
[L02]	Indoor unit incompatible with A2L refrigerant	When the indoor unit that does not correspond is connected with the outdoor unit. When the indoor unit incompatible with TU2C-Link is connected. When the remote controller or FS unit incompatible with TU2C-Link is connected. When the indoor unit incompatible with R32 refrigerant is connected.

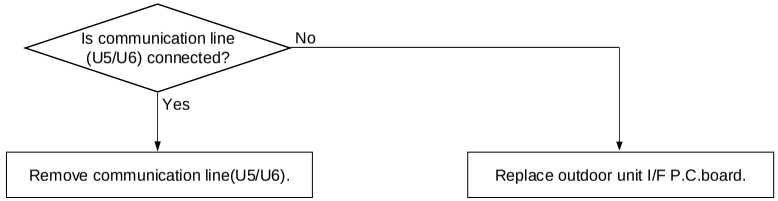


*1 If the manufacturing date of the indoor unit is too old, there is a possibility that, it is not compatible with A2L refrigerant.
*2 Previous FS unit (SHRM-e model) cannot be connected.

Check code	Check code name	Cause
[L03]	Duplicated indoor header units	There are two or more indoor header units in a group during group control.

1) Check whether the connection on remote controllers (group and/or individual) has been changed since the group configuration and address checking on the remote controllers finished.
2) If the group configuration and address are normal when power has been turned on, the mode automatically shifts to address setup mode. For setting up addresses again, refer to "Address setup".

Check code	Check code name	Cause
[L04]	Duplicated setup of outdoor line address	Outdoor line addresses are duplicated.



Check code	Check code name	Cause
[L05]	Duplicated indoor units with priority (Displayed on indoor unit with priority)	Two or more prior indoor units exist.

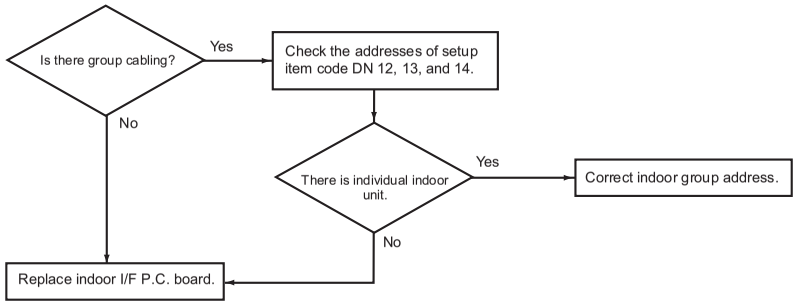
This check code is displayed on the indoor unit set as a prior one when two or more prior indoor units are detected.
• Priority setup with two or more units is not available. As only one indoor unit with priority is valid, change the setup.

Check code	Check code name	Cause
[L06]	Duplicated indoor units with priority (Displayed on the indoor units other than ones with priority and on the outdoor unit)	Two or more indoor units with priority are duplicated.

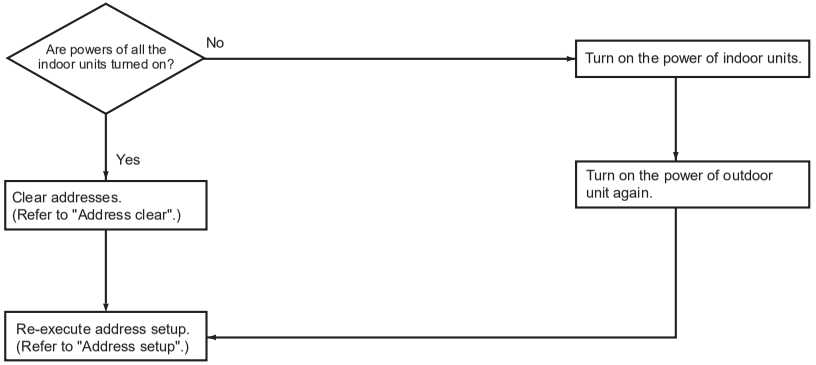
Sub-code: amount of indoor units with priority

When priority is given to two or more indoor units, this check code is displayed on indoor units other than the units set as prior ones and the outdoor unit.
• As only one indoor unit with priority is valid, change the setup.
Change the setup so that only one indoor unit has priority.

Check code	Check code name	Cause
[L07]	A group line exists in an individual indoor unit	A group line is connected to an individual indoor unit.

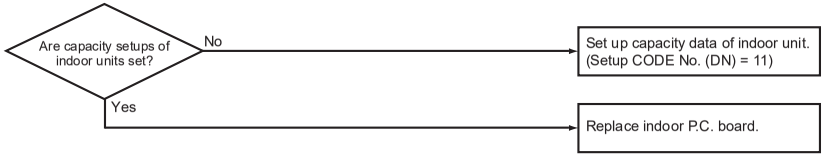


Check code	Check code name	Cause
[L08]	Indoor group / address unset	Indoor unit address is unset



Note) This code is displayed when the power is turned on at the first time after installation. (Because the address is not yet set up)

Check code	Check code name	Cause
[L09]	Indoor capacity unset	Indoor unit's capacity is unset



Check code	Check code name	Cause
[L10]	Outdoor capacity unset	Outdoor unit capacity has not been set up by outdoor unit DN code after replacing with service I/F P.C. board.

This code is displayed when you have not set up the model after replacing the I/F P.C. board. Please set up a mode according to "13-1-3. Interface P.C. Board (MCC-1747) Replacement Procedure".

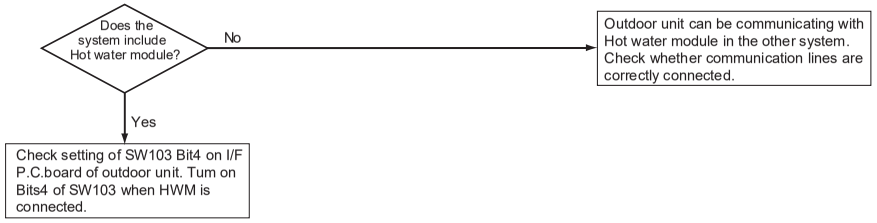
Check code	Check code name	Cause
[L17]	Incompatible combination of outdoor units	A SMMS-u series outdoor unit is connected with an older series outdoor unit.

A SMMS-u series outdoor unit cannot be connected with an older series outdoor unit. Use it with another SMMS-u unit.

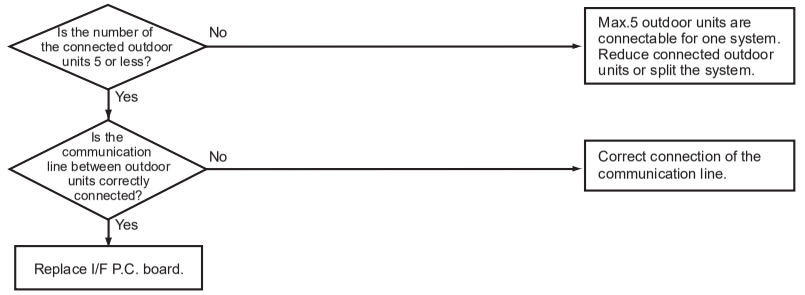
Check code	Check code name	Cause
[L20]	Duplicated central control addresses	Central control addresses are duplicated.



Check code	Check code name	Cause
[L23]-02	Switch setting trouble of outdoor unit	Switch setting trouble of outdoor unit when HWM is connected.

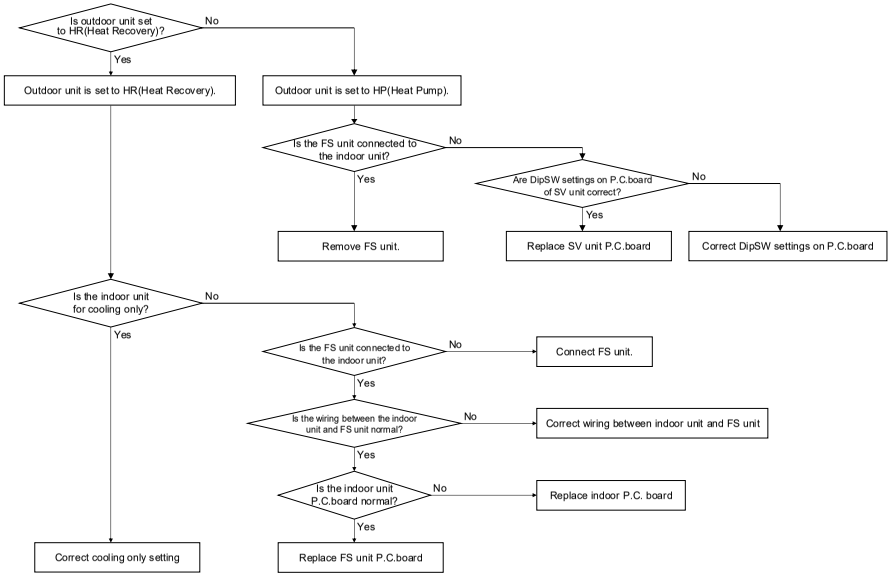


Check code	Check code name	Cause
[L28]	Quantity over of connected outdoor units	1. Quantity over of connected outdoor units. 2. Connection trouble of communication line between outdoor units 3. Outdoor I/F P.C. board trouble



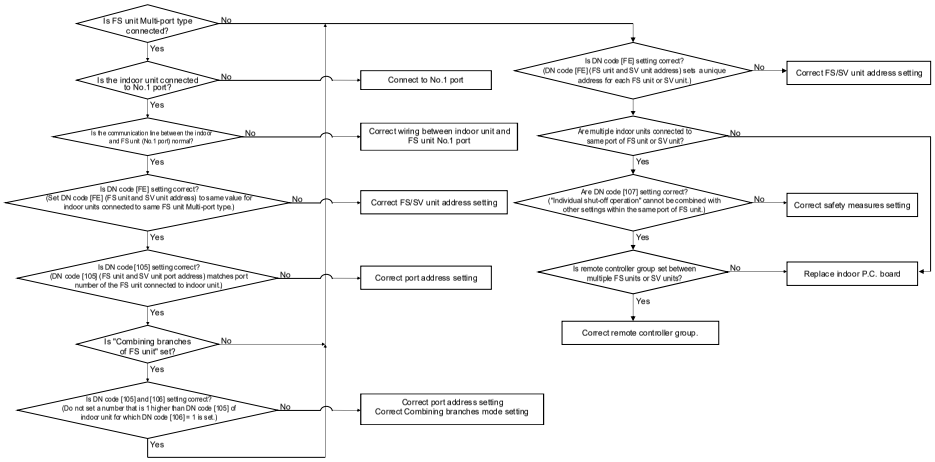
Check code	Check code name	Cause
[L11]	Flow Selector unit or Shut-off Valve unit installation trouble	1. When outdoor unit is set to "HR", FS unit is not connected to indoor unit and it is not set to "cooling only". 2. When outdoor unit is set to "HP", FS unit is connected to indoor unit. 3. "Cooling only" setting trouble 4. FS unit P.C.board trouble 5. Communication connection trouble between Flow Selector unit and indoor unit.

Note:
·This check code may be displayed in combination with other check codes. (Example; check code E17, J01, J02, J03)
If check code "E17, J01-03" are displayed on other indoor units, refer to Troubleshooting these check codes first, after resolving the issue, troubleshoot "L11".
·There is a function to check indoor unit address where "L11" is occurring on 7-segment display of outdoor unit.
Refer to "7-7-11. Confirmation of the check code (L02, L11, L13, L14) occurred during installation" when using this function.



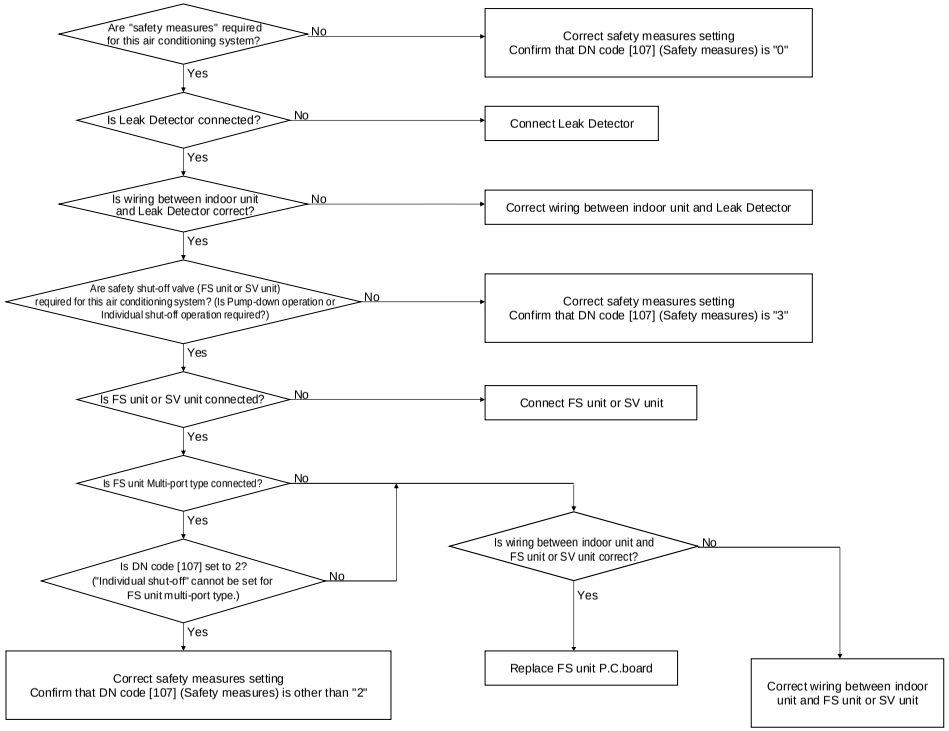
Check code	Check code name	Cause
[L13]	Safety measures setting unmatch	1. "Safety measures" settings for indoor units connected to same FS unit SV unit are different. (When “Individual shut-off” and other settings exclude "No safety measures" are mixed.) 2. No indoor unit is connected to No.1 port of FS unit Multi-port type 3. Set a number that is one larger than the "FS unit and SV unit port address of the indoor unit for which "Combining branches of FS unit" is set. Example; If the "port address" of the indoor unit for which "FS unit branch combination" is set to 3, 4 must not be set. 4. Multiple remote controller groups are set to one port of the FS unit, a different port address is set for one of the groups. 5. Same address is set for different FS units or SV units.

Note:
·This check code may be displayed in combination with other check codes. (Example; check code E17, J01, J02, J03)
If check code "E17, J01-03" are displayed on other indoor units, refer to Troubleshooting these check codes first, after resolving the issue, troubleshoot "L13".
·There is a function to check indoor unit address where "L13" is occurring on 7-segment display of outdoor unit..
Refer to "7-7-11. Confirmation of the check code (L02, L11, L13, L14) occurred during installation" when using this function.



Check code	Check code name	Cause
[L14]	Safety device nonconformity	1. "Safety measures" setting is set other than "no safety measures" and Le Detector is not connected. (Detected when power is turned on.) 2. Safety measures" setting is set to "Pump-down operation" or "Individual shut-off operation" and FS unit or SV unit is not connected. 3. "Safety measures" setting is set to "Individual shut-off operation" a connected to FS unit Multi-port type.

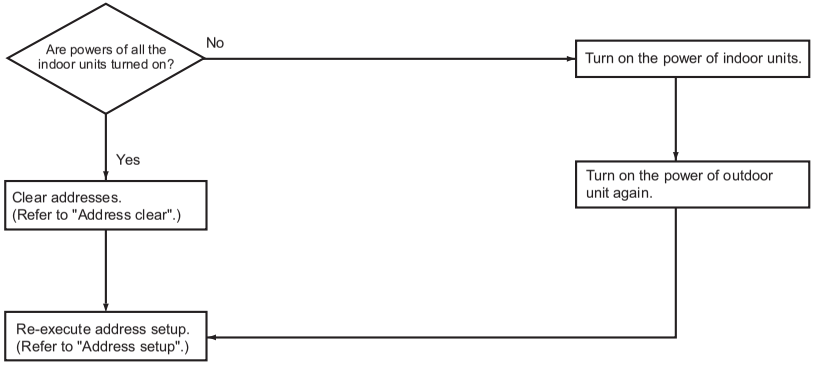
Note:
·This check code may be displayed in combination with other check codes. (Example; check code E17, J01, J02, J03)
If check code "E17, J01-03" are displayed on other indoor units, refer to Troubleshooting these check codes first, after resolving the issue, troubleshoot "L14".
·There is a function to check indoor unit address where "L14" is occurring on 7-segment display of outdoor unit..
Refer to "7-7-11. Confirmation of the check code (L02, L11, L13, L14) occurred during installation" when using this function.



Check code	Check code name	Cause
[L24]	02:Indoor units operation mode priority setting	Priority setting has not been performed for indoor units

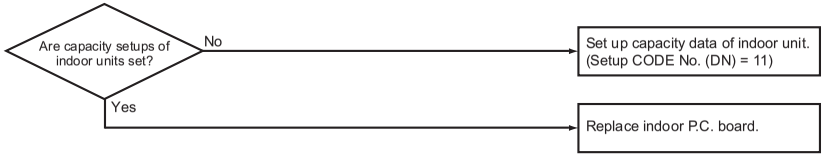
The check code is displayed on the indoor unit set when the priority-setting of the indoor operation mode is overlapped in the same branch system.
Correct the priority-setting of the indoor operation mode in DN(FD).

Check code	Check code name	Cause
[L08]	Indoor group / address unset	Indoor unit address is unset



Note) This code is displayed when the power is turned on at the first time after installation. (Because the address is not yet set up)

Check code	Check code name	Cause
[L09]	Indoor capacity unset	Indoor unit's capacity is unset



Check code	Check code name	Cause
[L10]	Outdoor capacity unset	Outdoor unit capacity has not been set up by outdoor unit DN code after replacing with service I/F P.C. board.

This code is displayed when you have not set up the model after replacing the I/F P.C. board. Please set up a mode according to "13-1-3. Interface P.C. Board (MCC-1747) Replacement Procedure".

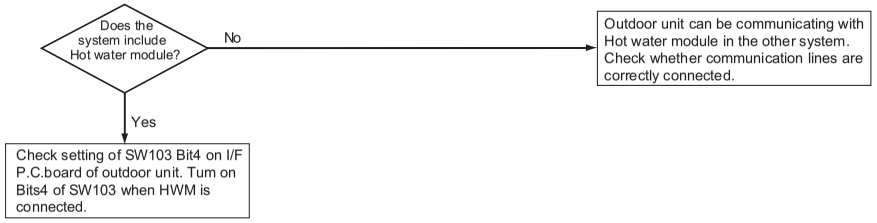
Check code	Check code name	Cause
[L17]	Incompatible combination of outdoor units	Connect SHRM-A outdoor unit to other series outdoor units.

SHRM-A outdoor unit can only be used in single system.

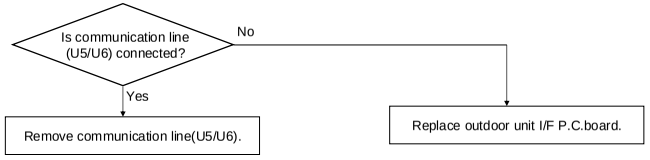
Check code	Check code name	Cause
[L20]	Duplicated central control addresses	Central control addresses are duplicated.



Check code	Check code name	Cause
[L23]-02	Switch setting trouble of outdoor unit	Switch setting trouble of outdoor unit when HWM is connected.



Check code	Check code name	Cause
[L28]	Quantity over of connected outdoor units	1. Quantity over of connected outdoor units. 2. Outdoor I/F P.C. board trouble



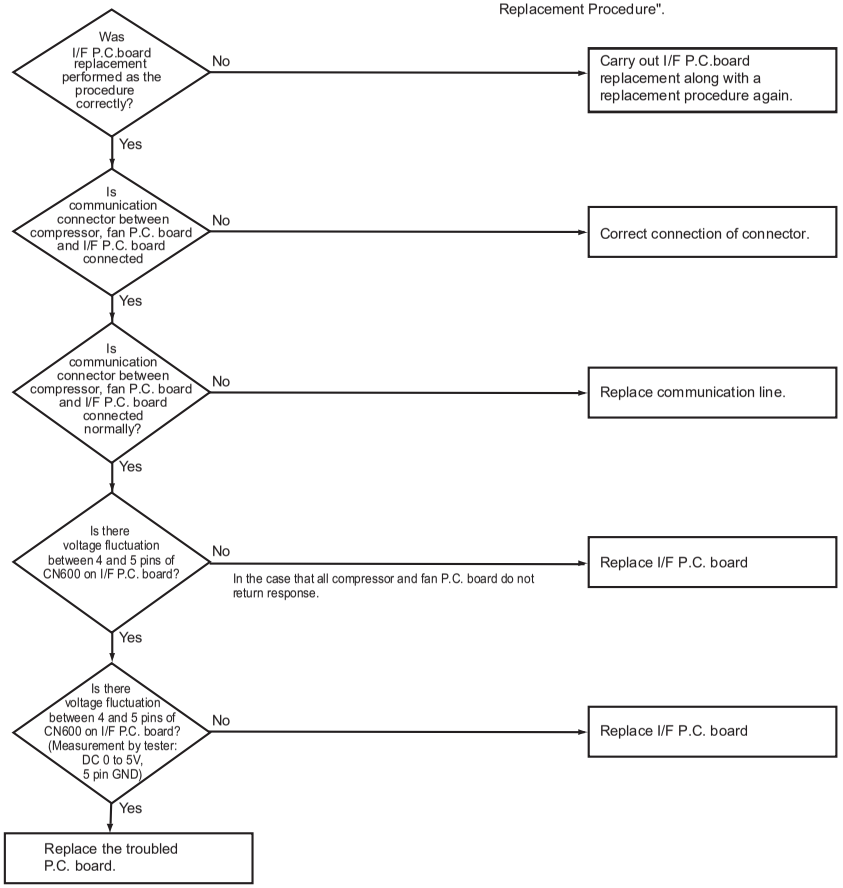
Check code	Check code name	Cause
[L29]	Inverter P.C. board quantity trouble	1. Incorrect model setup in service for I/F P.C. board 2. Communication trouble between compressor, fan P.C. board and I/F 3. Compressor, fan P.C. board, I/F P.C. board trouble

Sub-code

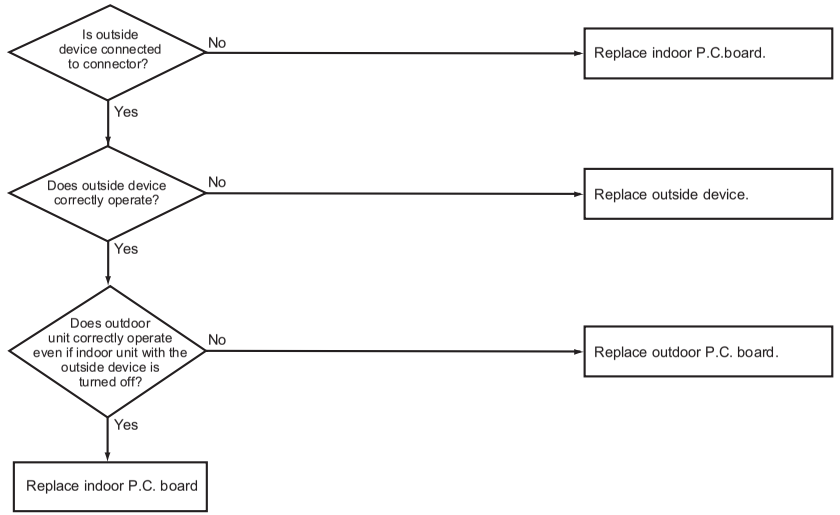
	P.C.board					P.C.board				
	Compressor		Fan Motor			Compressor		Fan Motor	
	1	2	1	2		1	2	1	2
01	O				11	O			O
02		O			12		O		O
03	O	O			13	O	O		O
08			O		18			O	O
09	O		O		19	O		O	O
0A		O	O		1A		O	O	O
0B	O	O	O		1B	O	O	O	O
10				O					

Circle (O): Trouble P.C. board

Please set the model according to "13-1-3. Interface P.C. Board (MCC-1747) Replacement Procedure".



Check code	Check code name	Cause
[L30]	Interlock in indoor unit from outside	Abnormal input from the outside

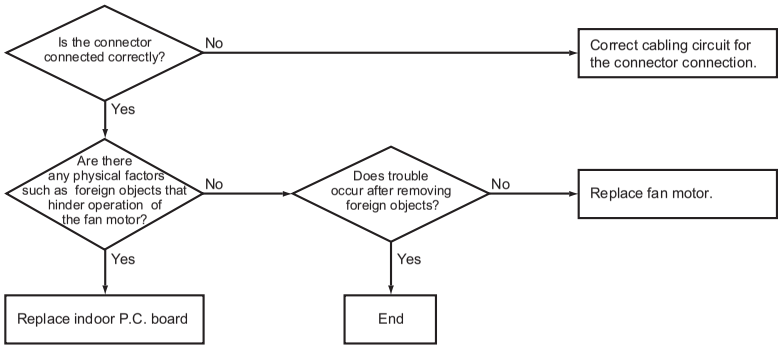


Check code	Check code name	Cause
[L31]	Other IPDU troubles	1. Outdoor unit power trouble 2. Outdoor I/F P.C. board trouble



Check code	Check code name	Cause
[P01]	Indoor fan motor trouble	1. Wiring trouble 2. Check fan motor.

* For the models equipped with AC fan motor only

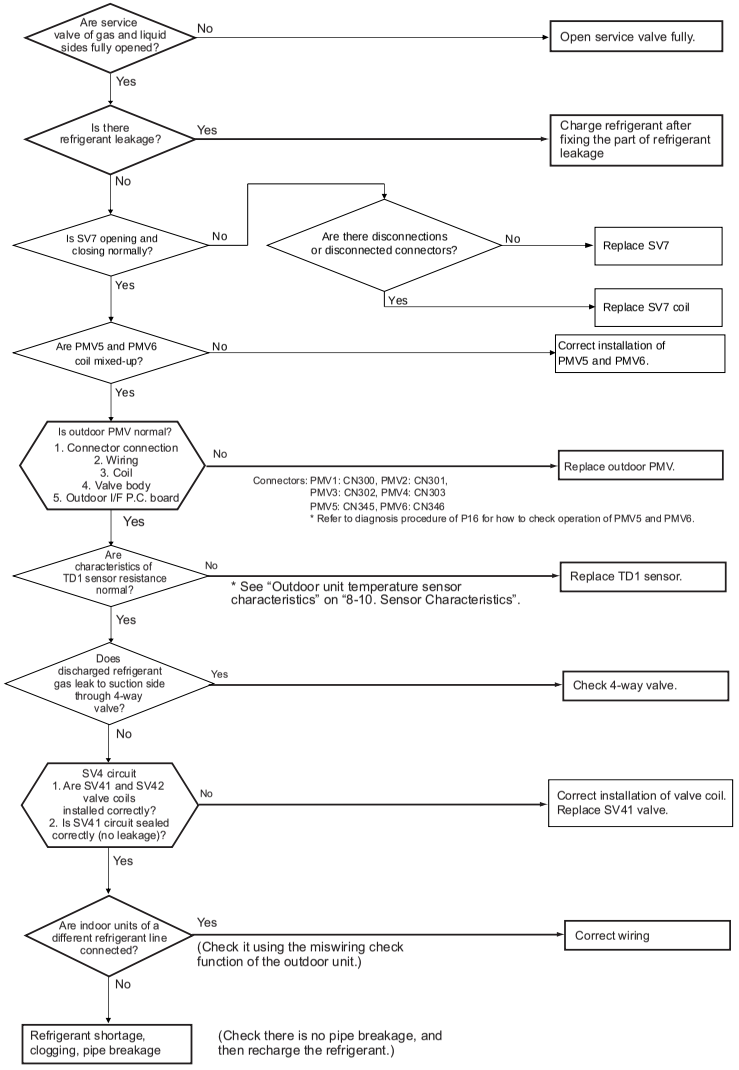


Check code	Check code name	Cause
[P05]	Phase trouble detected, power failure detected, abnormal inverter DC voltage (on compressor)	Phase trouble or power failure of the power supply to the outdoor unit

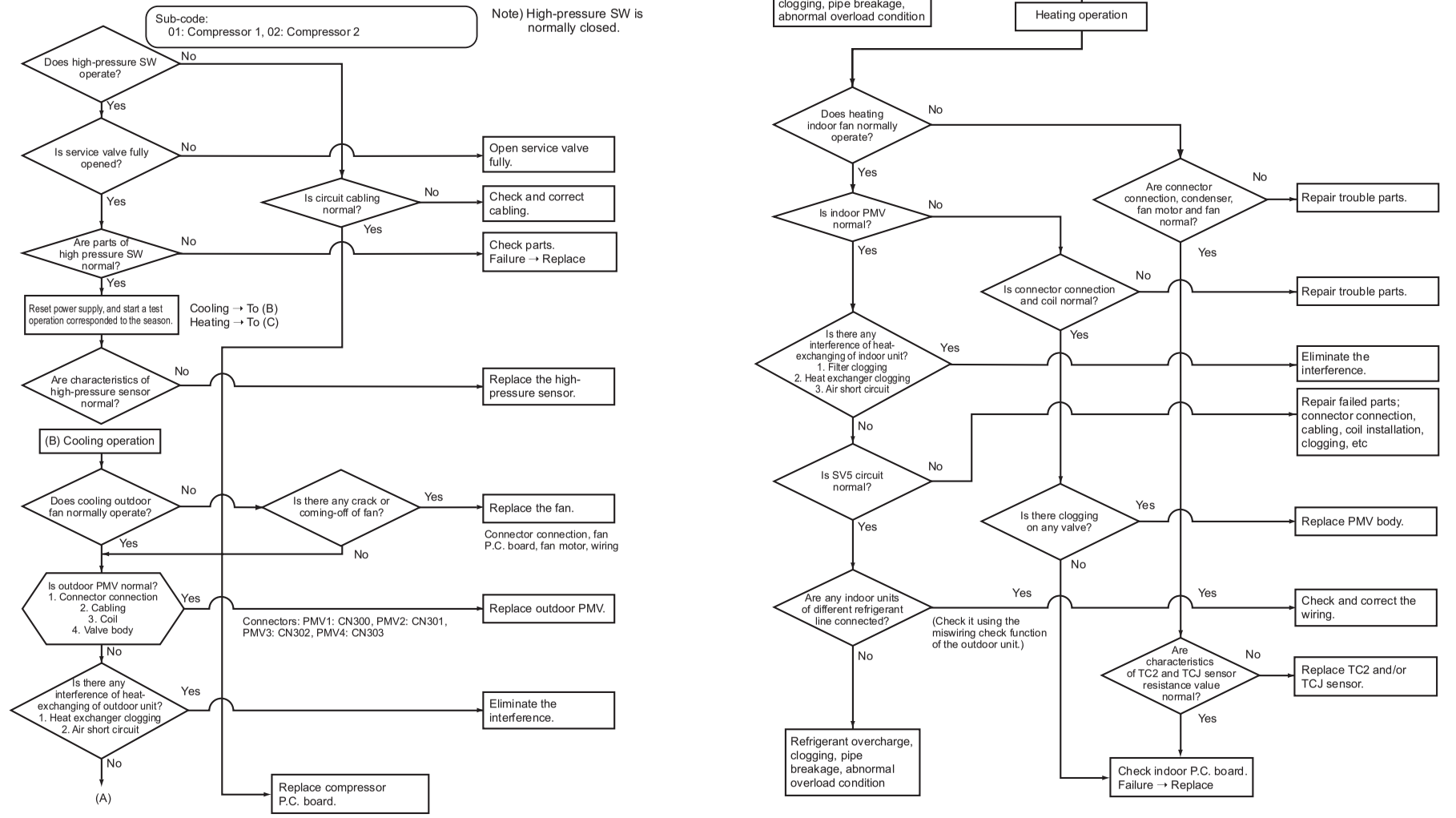
Sub-code:	00: Power detection trouble 01: Open phase 02: Power supply miswiring
	1∗: Compressor 1 side 2∗: Compressor 2 side

- Check the phase of the power line to the outdoor unit.
- Check trouble of outdoor I/F P.C. board.
- Check there are no loosened connectors, etc.
- Check connection wiring of MG-CTT.
- Check operation of MG-CTT.

Check code	Check code name	Cause
[P03]	Discharge temp TD1 trouble	1. Service valve of outdoor unit closed 2. Outdoor PMV trouble 3. TD sensor trouble 4. Refrigerant shortage, clogging of refrigerant piping 5. 4-way valve trouble 6. SV4 circuit leakage, misinstallation 7. PMV5 and PMV6 misinstallation

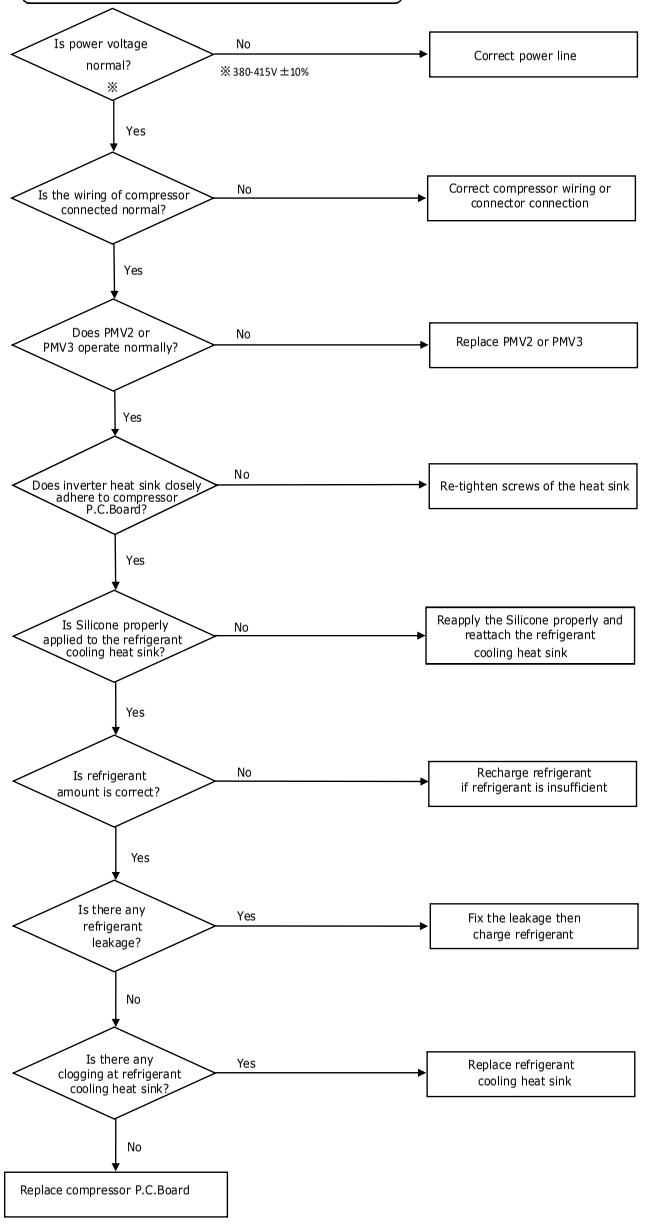


Check code	Check code name	Cause
[P04]	Trouble concerning high-pressure SW	1. High-pressure SW trouble 2. Service valve closed 3. Pd sensor trouble 4. Indoor/outdoor fan trouble 5. Indoor/outdoor PMV choke 6. Indoor/outdoor heat exchanger clogging, air short circuit 7. SV4 circuit trouble 8. Discharge line check valve malfunction 9. Refrigerant overcharge



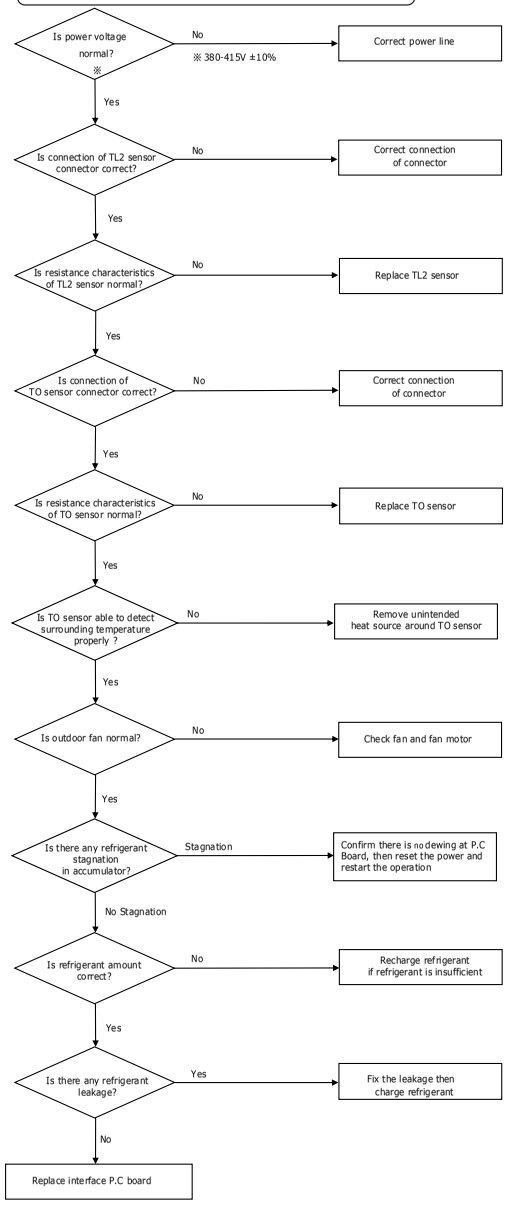
Check code	Check code name	Cause
[P07-1*, 2*]	Heat sink overheat trouble	1. Power voltage trouble 2. Heat sink installation trouble 3. Clogging at PMV2, 3 4. Compressor P.C.Board trouble

Sub-code:
00:Compressor temperature sensor trouble
1* : Compressor 1 TH sensor trouble
2* : Compressor 2 TH sensor trouble



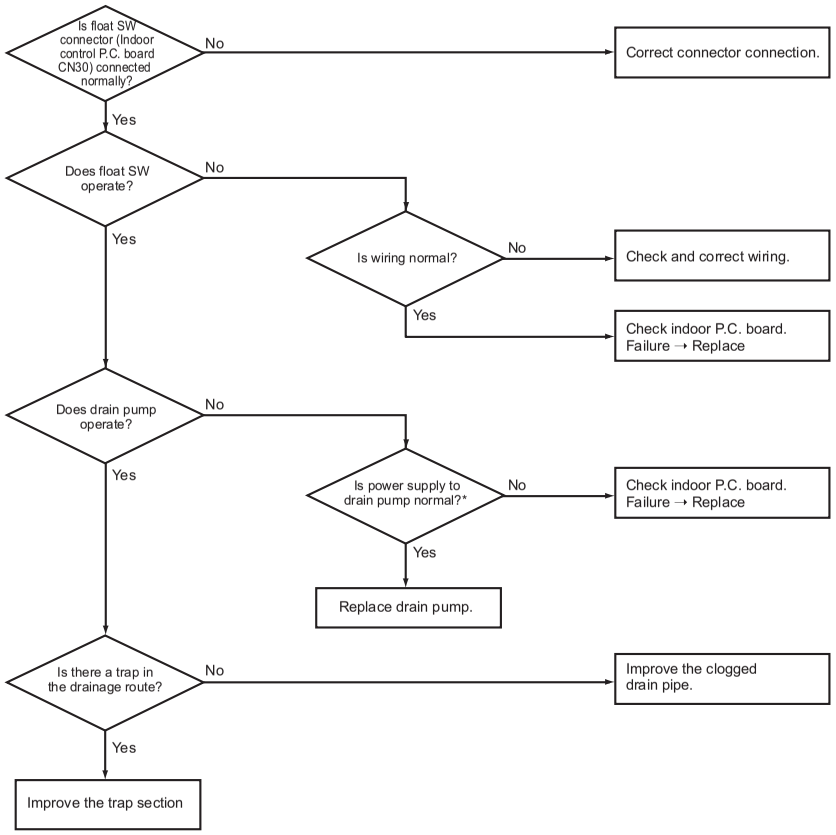
Check code	Check code name	Cause
[P07-04]	Heat sink dewing trouble	1. Power voltage trouble 2. Refrigerant stagnation in accumulator 3. Refrigerant leakage 4. Outdoor fan system trouble 5. TL2 sensor trouble 6. TO sensor trouble 7. Interface P.C.Board trouble

Sub-code:
04:Heat sink dewing trouble



Check code	Check code name	Cause
[P10]	Water overflow in an indoor unit	1. Float SW malfunction 2. Drain pump malfunction 3. Clogging of drain pipe 4. Indoor P.C. board trouble

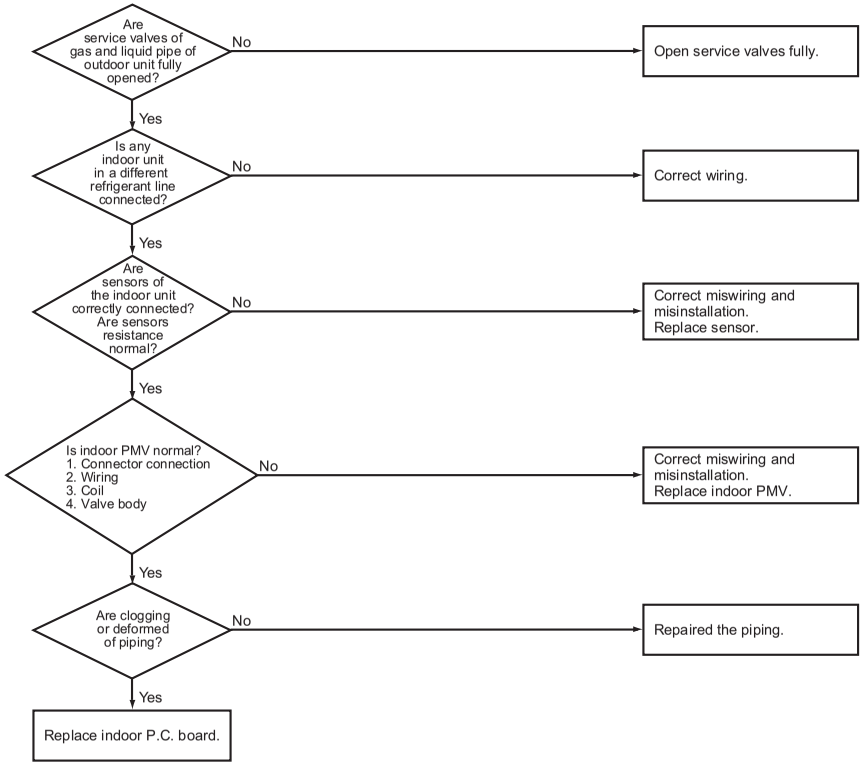
Sub-code: Overflowing indoor unit's address



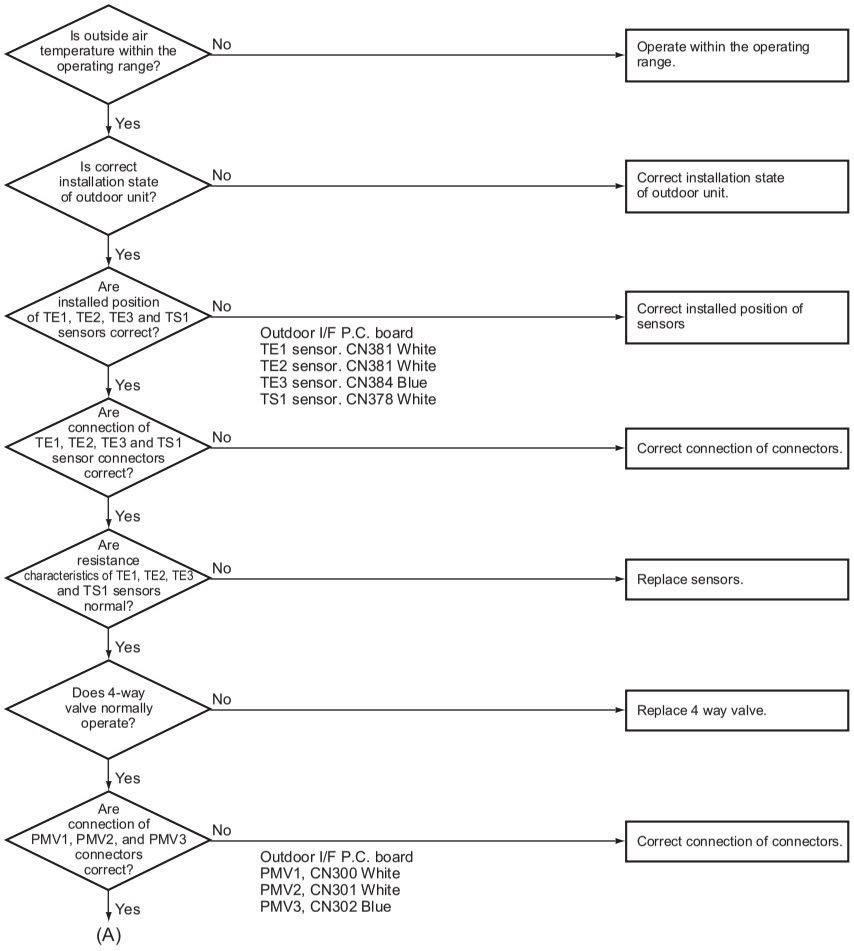
* Check there is 220V voltage of 1-3 pin of CN504 on indoor P.C. board.

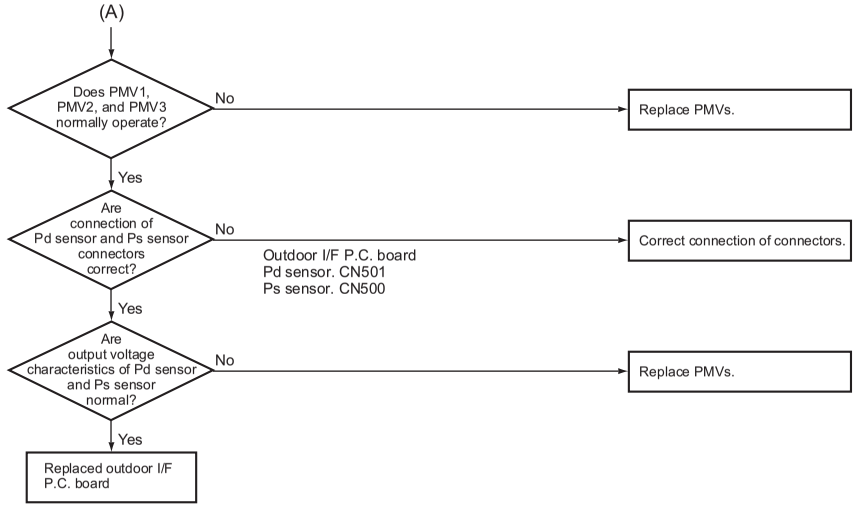
Check code	Check code name	Cause
[P14]	Another refrigerant cycle protection	1. Service valve closed 2. Indoor/outdoor communication wire miswiring 3. Indoor sensor or PMV trouble 4. Clogging or deformed of piping

Sub-code 01: Outdoor unit valve is closed



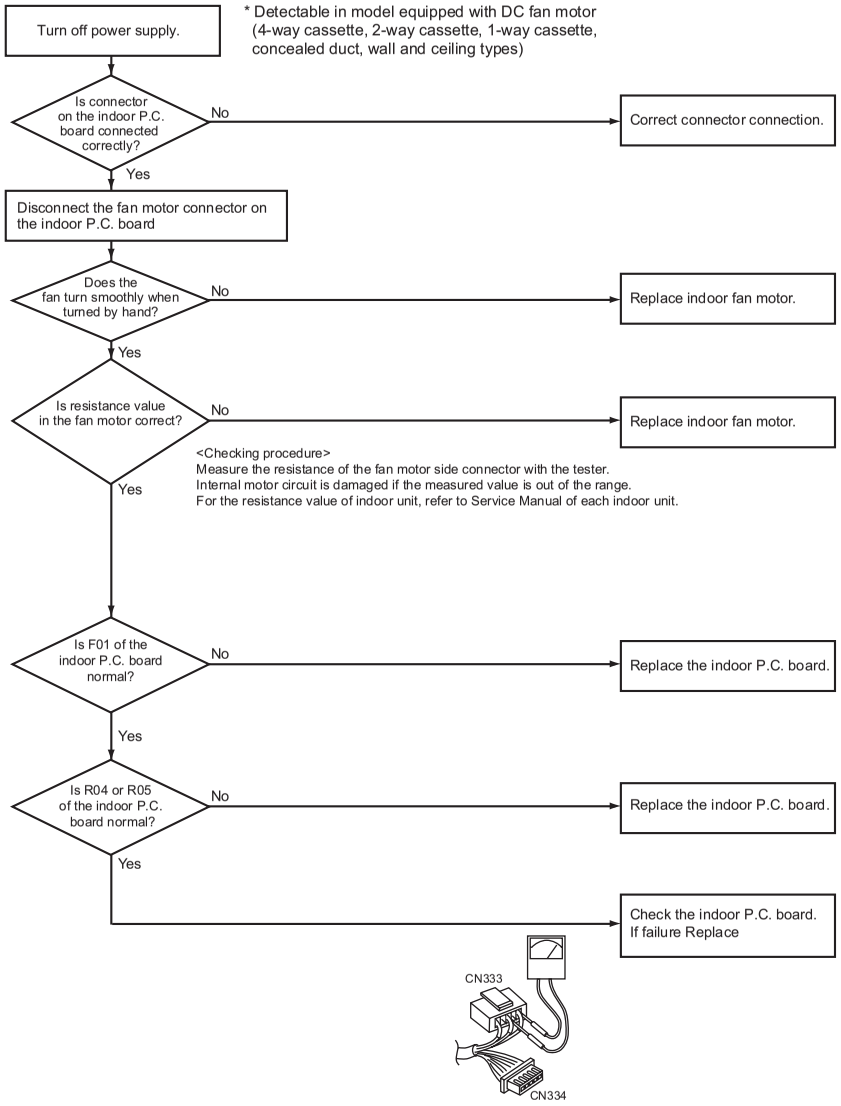
Check code	Check code name	Cause
[P11]	Outdoor heat exchanger freeze trouble	1. Refrigerant shortage 2. TE1, TE2, TE3 sensor trouble 3. Pd, Ps sensor trouble 4. TS1 sensor trouble 5. 4-way valve trouble 6. PMV1 / PMV2 / PMV3 trouble 7. Outdoor I/F P.C. board trouble 8. Short circuit from outlet air to inlet air



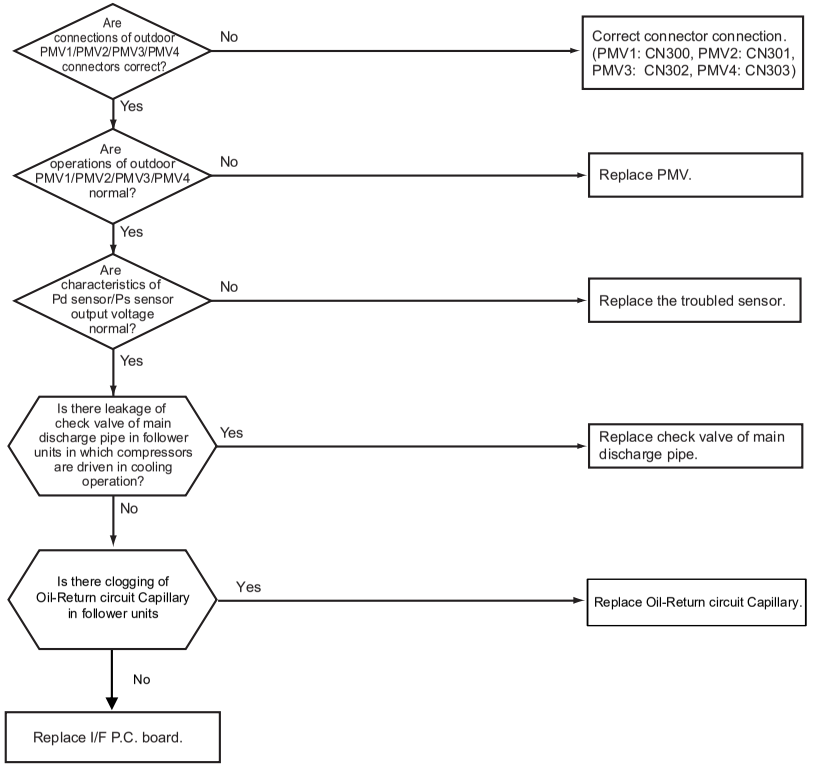


Check code	Check code name	Cause
[P12]	Indoor fan motor trouble	1. Wiring trouble of fan motor connector 2. Fan motor trouble 3. Indoor P.C. board trouble

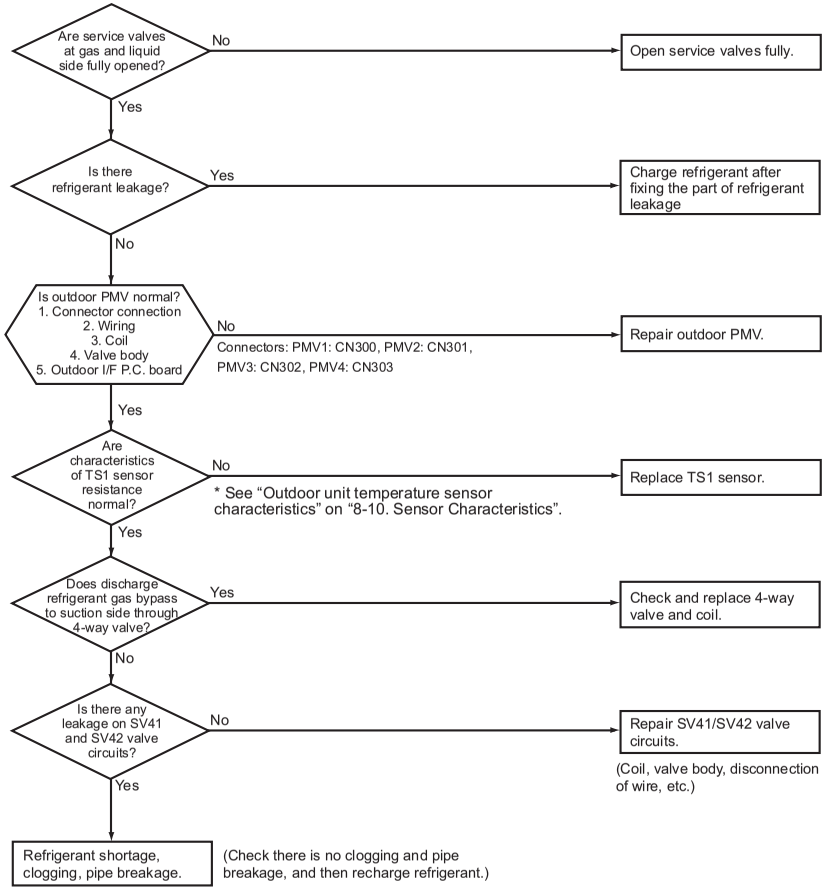
* Detectable in model equipped with DC fan motor (4-way cassette, 2-way cassette, 1-way cassette, concealed duct, wall and ceiling types)



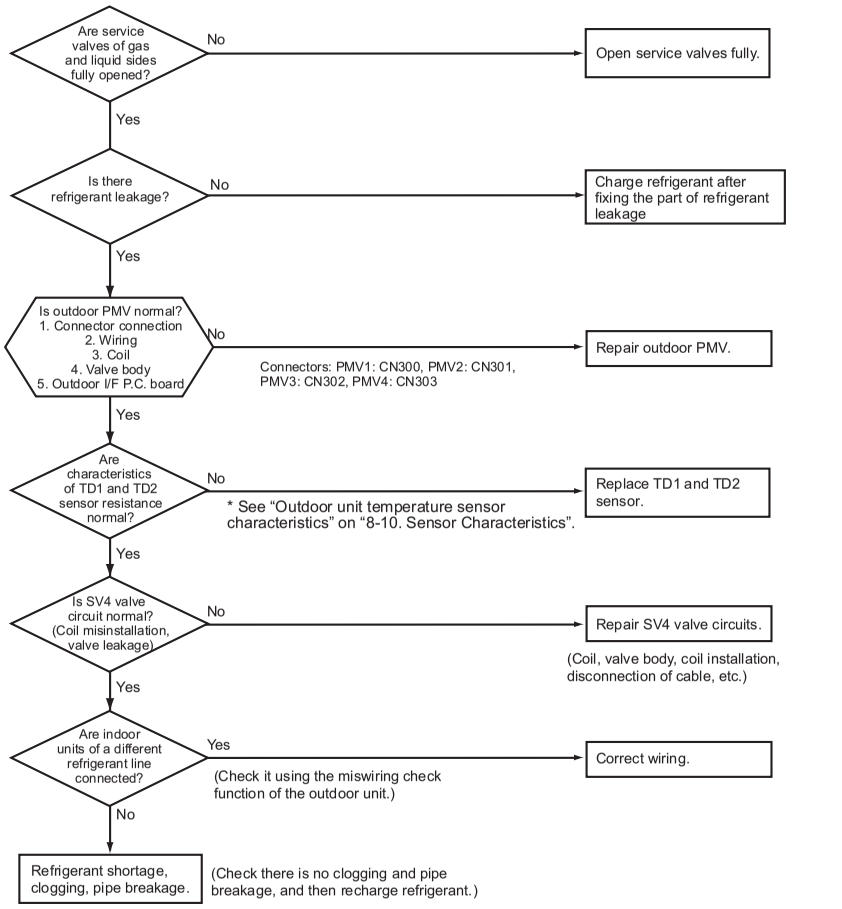
Check code	Check code name	Cause
[P13]	Outdoor liquid back detection trouble	1.PMV1/PMV3/PMV4 trouble 2. Pd sensor, Ps sensor trouble 3. Leakage at a check valve on a main discharge pipe 4. Outdoor I/F P.C. board trouble



Check code	Check code name	Cause
[P15]	Gas leak detection TS condition (Sub-code: 01)	1. Outdoor unit service valve closed 2. Outdoor PMV trouble 3. TS1 sensor trouble 4. Refrigerant shortage, clogging refrigerant circuit 5. 4-way valve trouble 6. SV4 circuit trouble



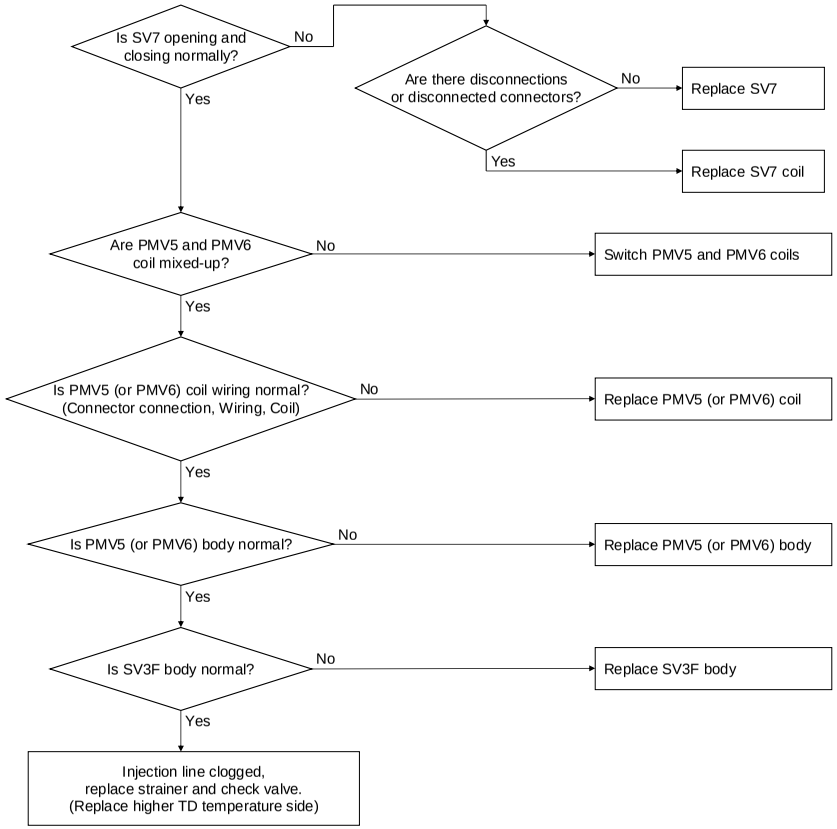
Check code	Check code name	Cause
[P15]	Gas leak detection TD condition (Sub-code: 02)	1. Outdoor unit service valve closed 2. Outdoor PMV trouble 3. TD sensor trouble 4. SV4 circuit trouble 5. Refrigerant shortage, clogging refrigerant circuit



Check code	Check code name	Cause
P16	Injection circuit trouble PMV5 failure (Sub-code: 01) PMV6 failure (Sub-code: 02) Misinstallation of PMV5 and PMV6 (Sub-code: 03)	· Sub-code: 01 1. PMV5 failure (open state) 2. PMV5 coil failure or coil wiring disconnection 3. SV3F failure (open state) · Sub-code: 02 1. PMV6 failure (open state) 2. PMV6 coil failure or coil wiring disconnection 3. SV3F failure (open state) · Sub-code: 03 1. PMV5 coil and PMV6 coil mix-up 2. PMV5 or PMV6 failure 3. PMV5 coil or PMV6 coil failure 4. SV3F failure (open state) 5. SV7F failure (close state)

[Common for Sub-code: 01, 02, 03]

Note: Target PMV to be checked is PMV5 for Sub-code 01 and PMV6 for 02. Sub-code 03 confirms both PMVs.



Check method of PMV5 and PMV6

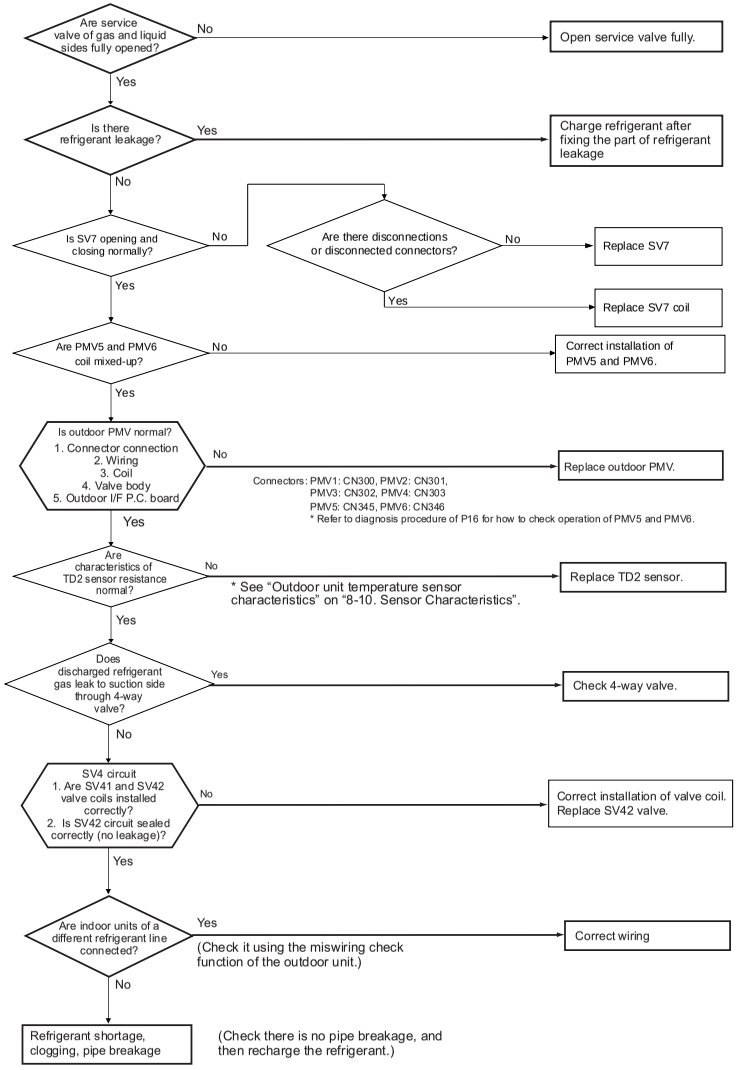
Check whether PMV5 and PMV6 are working normally by operating from the outdoor I/F board. In addition to troubleshooting, please use it for operation check after repair.

Confirmation method

1. Start operation in cooling or heating.
2. Wait for room temperature to stabilize. (About 10 to 20 minutes)
3. Make sure TD temperature is controlled between about 85°C and 95°C and that PMV5 or PMV6 is open normally. (If PMV opening range is approximately 52 to 500 steps, it is a normal operating range.)
4. Close target PMV by operating rotary SW of outdoor unit. Refer to "7-7-6. Pulse Motor Valve (PMV) Forced Open/Close Function and Solenoid valve Forced ON Function in Outdoor Unit" for how to operate target PMV. (Please check TD temperature before operating target PMV)
5. About 10 seconds to 1 minute after rotary switchof outdoor unit operation starts, if TD temperature of target compressor increases, it can be assumed to be operating normally. (Above times may vary depending on compressor frequency during operation.)

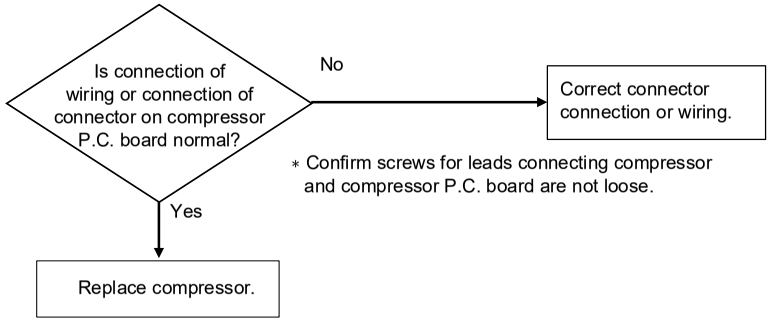
Notes:
· If PMV5 and PMV6 are not open, change operation mode. Injection PMV (PMV5, 6) may not open during heating operation in summer or cooling operation in winter.
· PMV5 and PMV6 automatically return to normal control 2 minutes after rotary switch operation starts.

Check code	Check code name	Cause
[P17]	Discharge temp TD2 trouble	1. Outdoor unit service valve closed 2. Outdoor PMV trouble 3. TD2 sensor trouble 4. Refrigerant shortage, clogging of refrigerant circuit 5. 4-way valve trouble 6. SV4 circuit leakage, misinstallation 7. PMV5 and PMV6 misinstallation

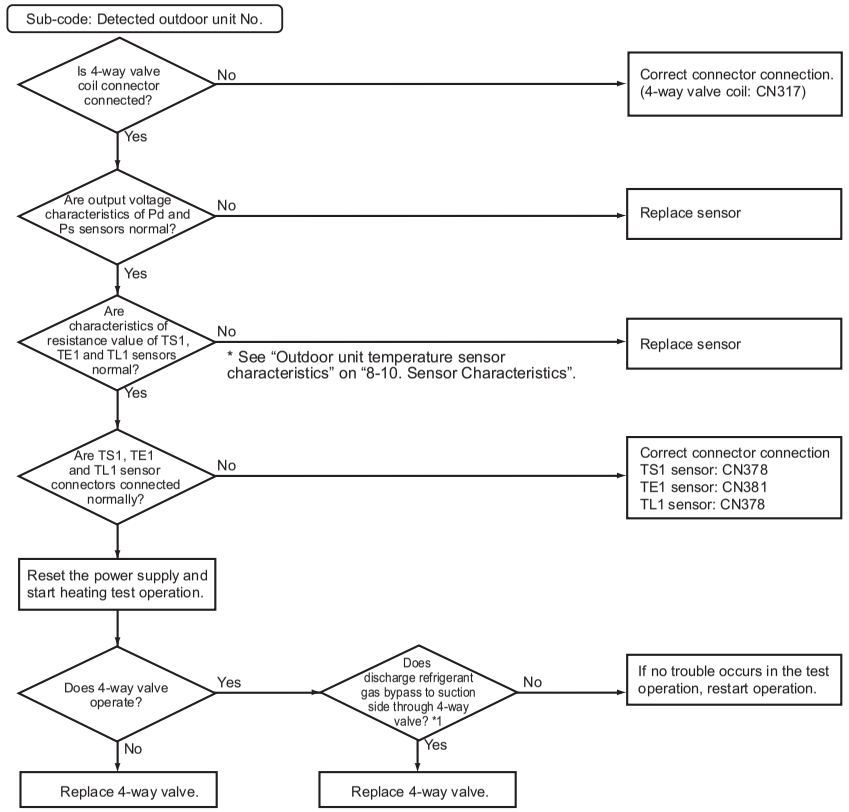


Check Code	Check code name	Cause
[H28]	Compressor motor winding trouble.	1. Compressor trouble.

Sub-code:
1*: Compressor 1,
2*: Compressor 2

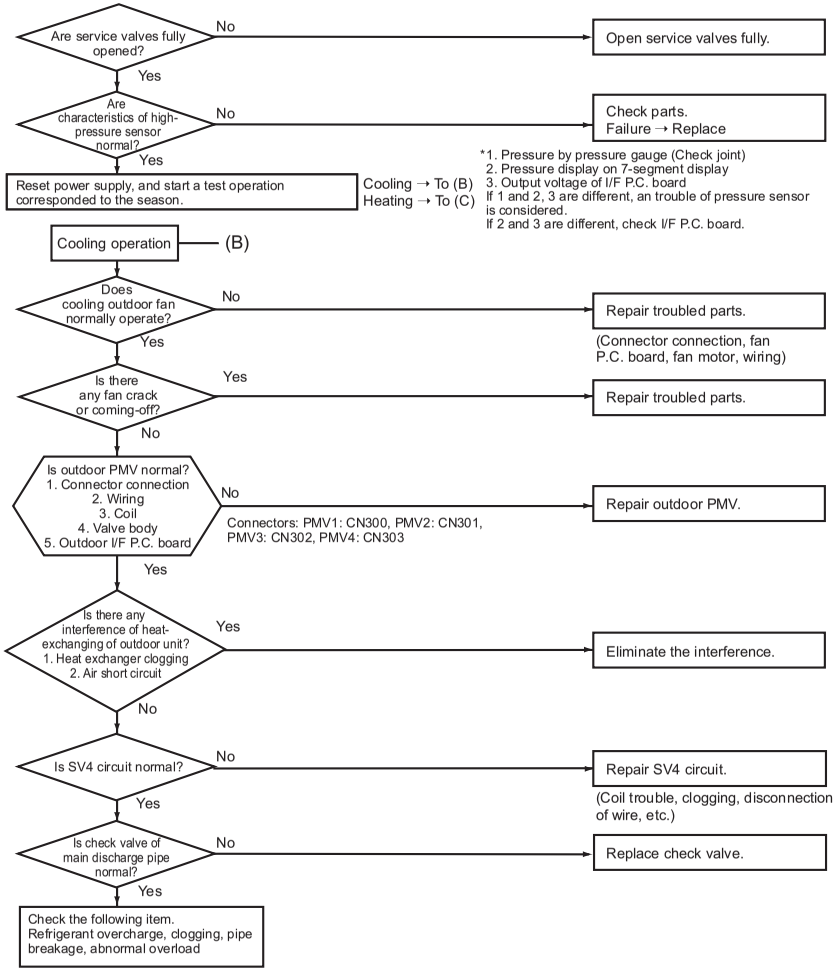


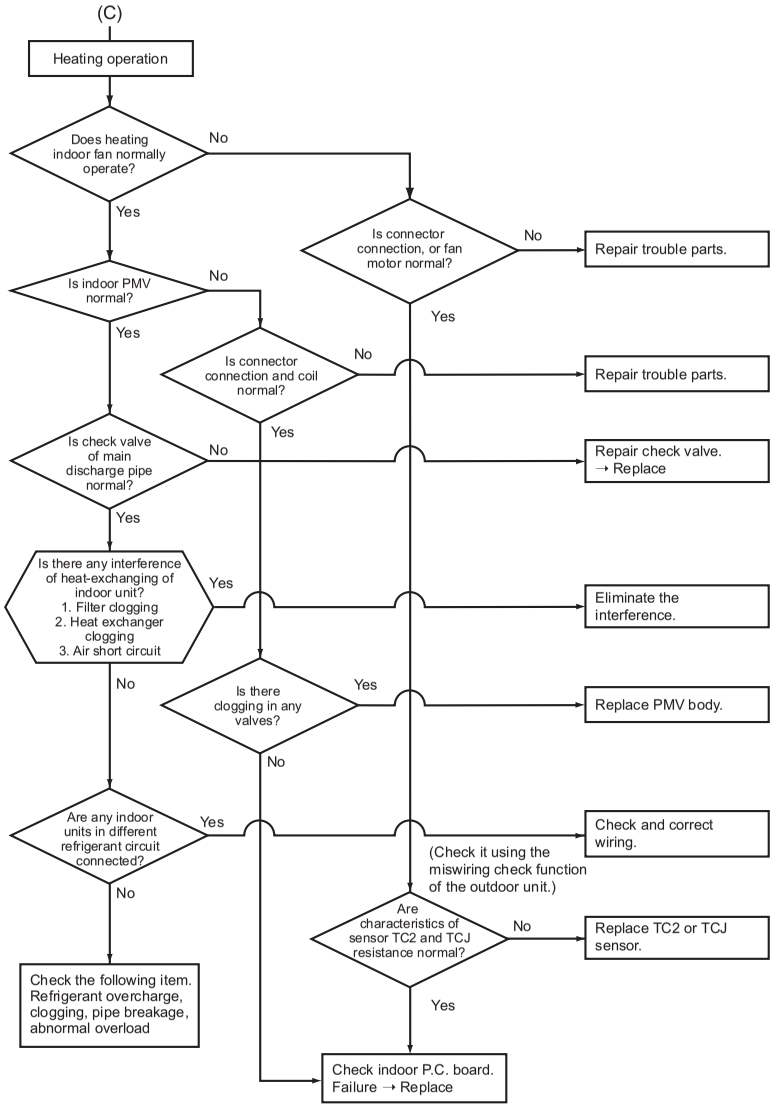
Check code	Check code name	Cause
[P19]	4-way valve reverse trouble	1. 4-way valve trouble 2. TS1 sensor/TE1 sensor trouble 3. Pd sensor/Ps sensor trouble 4. TE1 sensor/TL1 sensor misconnection



*1 Check TS1 and TE1 temperature of the outdoor unit which is running.
(I/F) SW01=[1], SW02=[7], SW03=[2] → TS sensor temperature
SW01=[1], SW02=[10], SW03=[2]→ TE sensor temperature
<Judgment criteria>
TE1 sensor: Normal if TE1 is 30°C or less in the seasons except summer (Outside temp 20°C or lower)
TS1 sensor: Normal if TS is 50°C or less in the seasons except summer (Outside temp 20°C or lower)

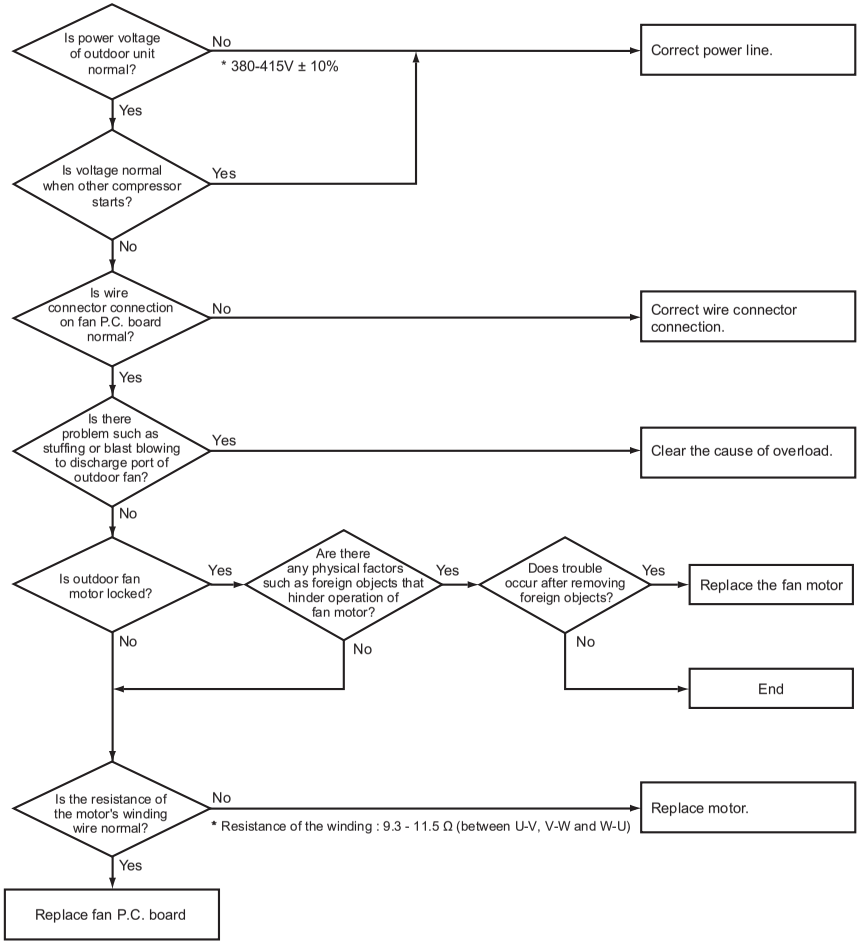
Check code	Check code name	Cause
[P20]	High-pressure protective operation	1. Pd sensor trouble 2. Service valve closed. 3. Indoor/outdoor fan trouble 4. Indoor/outdoor PMV clogging 5. Indoor/outdoor heat exchanger clogging 6. SV4 circuit trouble 7. Outdoor I/F P.C. board trouble 8. Operation trouble of check valve of main discharge pipe 9. Refrigerant overcharge





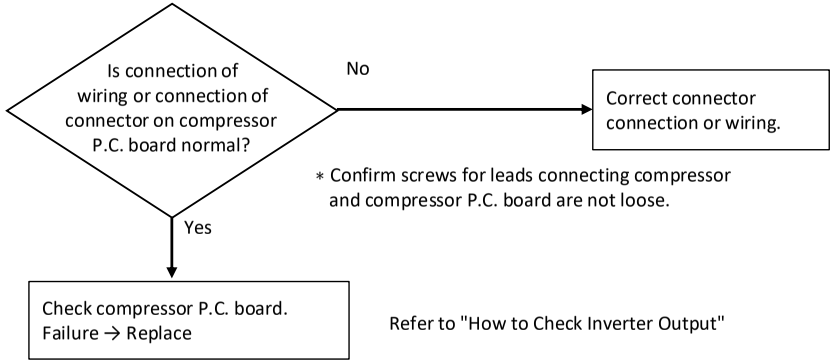
Check code	Check code name	Cause
[P22]	Outdoor fan motor trouble	1. Fan motor lock 2. Fan P.C. board trouble 3. Overload 4. External cause such as blast

Sub-code:
∗1: Fan 1, ∗2: Fan 2



Check Code	Check code name	Cause
[P25]	Compressor inverter P.C.board trouble.	1. Compressor P.C. board trouble.

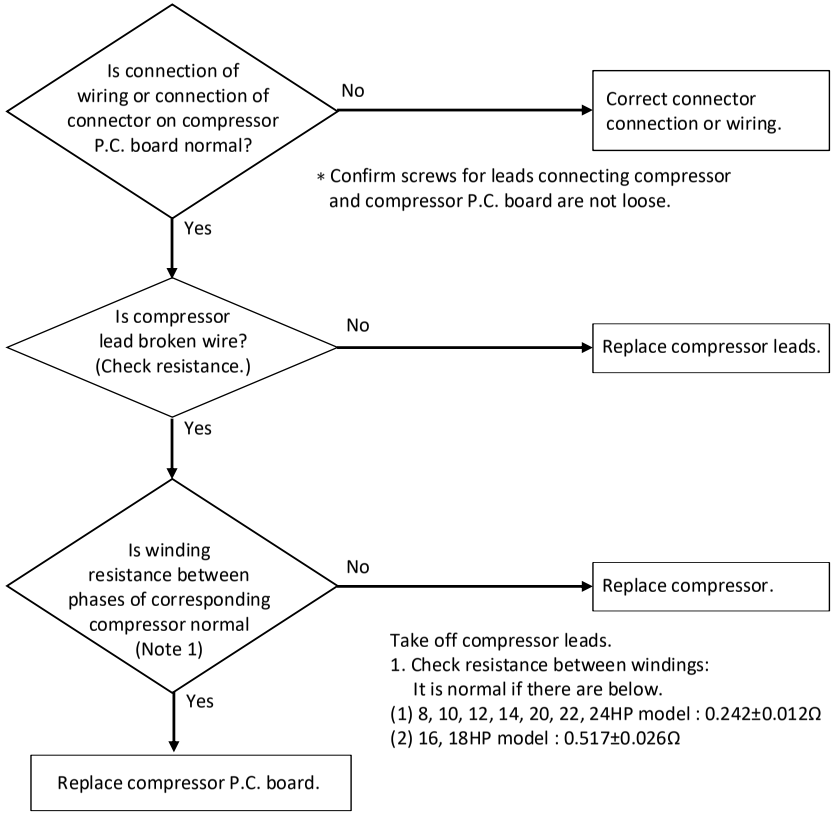
Sub-code:
1∗: Compressor 1, 2∗: Compressor 2



Refer to "How to Check Inverter Output"

Check Code	Check code name	Cause
[P26]	Compressor start up trouble.	1. Compressor trouble / Wire connection trouble. 2. Compressor leads trouble. 3. Compressor P.C. board trouble.

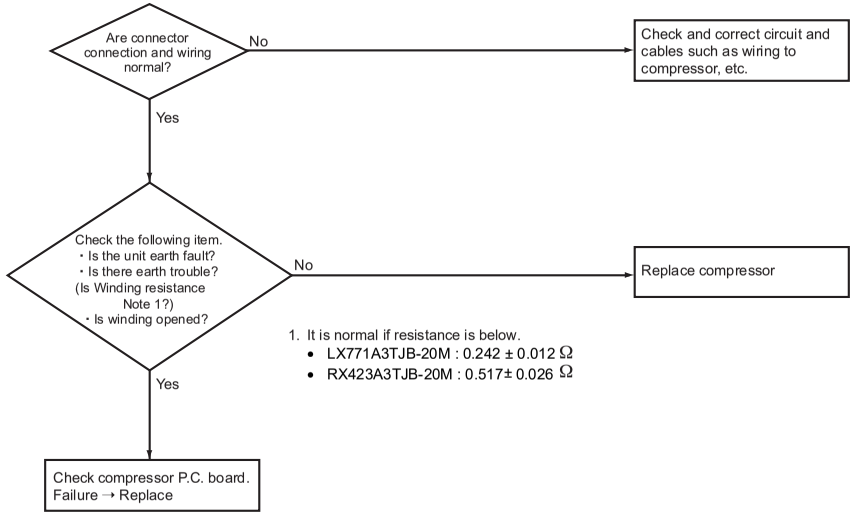
Sub-code:
1∗: Compressor 1, 2∗ : Compressor 2



Take off compressor leads.
1. Check resistance between windings:
It is normal if there are below.
(1) 8, 10, 12, 14, 20, 22, 24HP model : 0.242±0.012Ω
(2) 16, 18HP model : 0.517±0.026Ω

Check code	Check code name	Cause
[P29]	Compressor position detective circuit trouble	1. Wire/connector connection trouble 2. Compressor trouble 3. Compressor P.C. board trouble

Sub-code:
1∗: Compressor 1, 2∗: Compressor 2



1. It is normal if resistance is below.
- LX771A3TJB-20M : 0.242 ± 0.012 Ω
- RX423A3TJB-20M : 0.517± 0.026 Ω

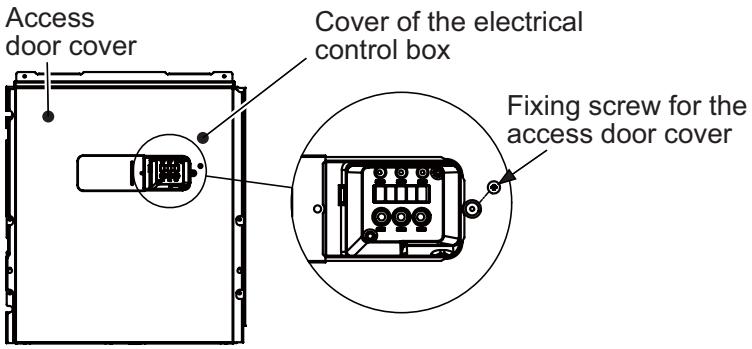
Check code	Check code name	Cause
[P31]	Other indoor trouble (Group follower unit trouble)	Another indoor unit in the group is abnormal.

When the header unit of the group detected trouble [E03], [L03], [L07] or [L08], the follower unit of the group displays [P31] trouble and stops. There are no check code display and alarm record of the main remote controller.

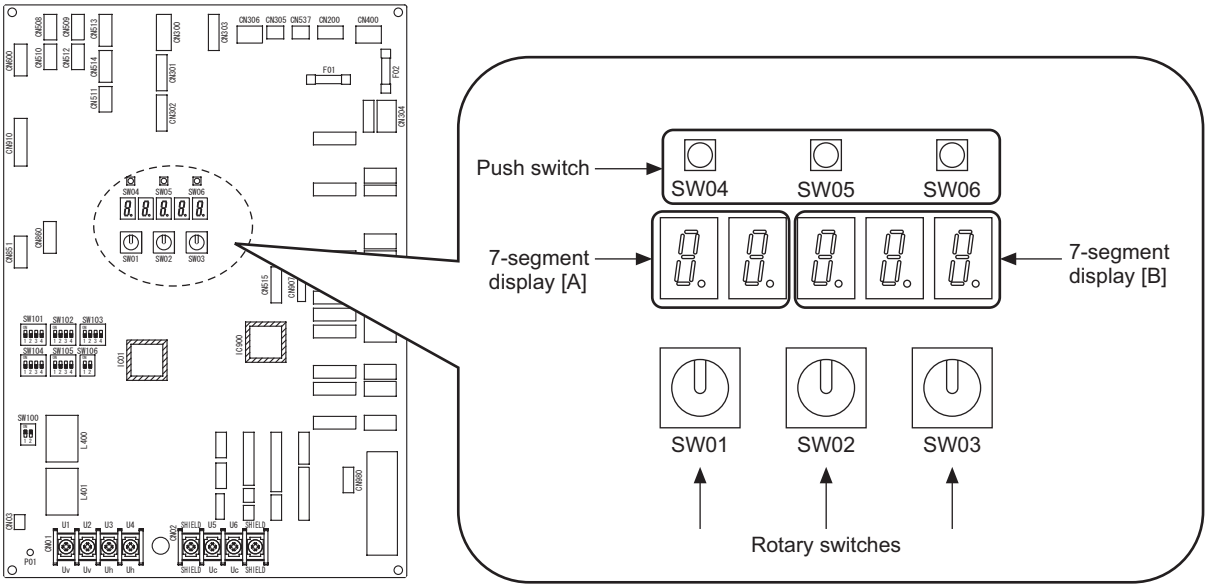
8-6. 7-Segment Display Function

7-segment display on outdoor unit (interface P.C. board)

The interface control P.C. board features a 7-segment LED display designed to check operational status. Display items can be changed by changing the combination of the number settings of rotary switches provided on the P.C. board (SW01, SW02 and SW03).



Interface P.C. board



Checking Procedure to Be Followed in Event of Abnormal Shutdown

If the system is shut down due to a trouble in the outdoor unit, perform checks in the following steps:

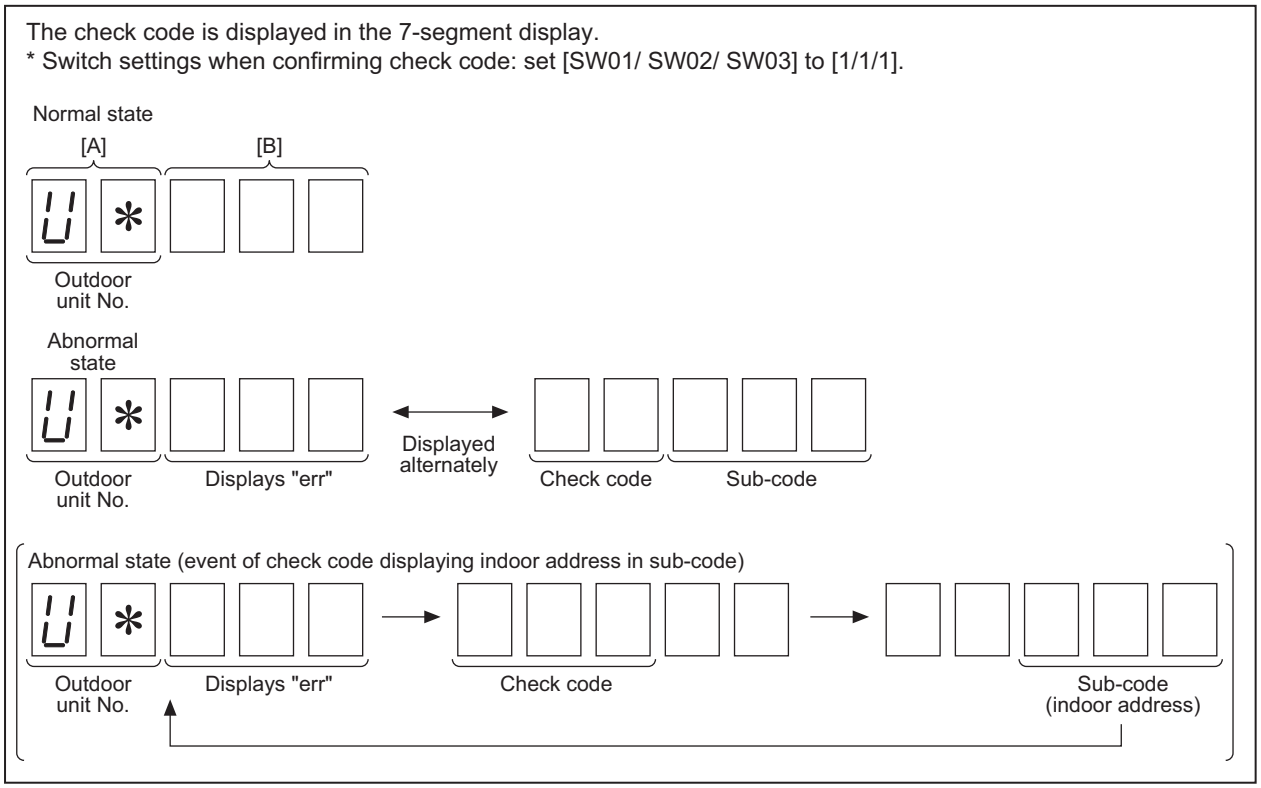
1 Open the panel of the outdoor unit and inspection window of the electric parts box, and check the 7-segment display.

The check code is displayed in the 7-segment display.

Checking Procedure to be Followed in Event of Abnormal Shutdown

In the event of a system shutdown due to an abnormal state at the outdoor unit, perform checks in the following steps.

1. Open the panel of the outdoor unit and inspection window of the electric parts box, and check the 7-segment display.



2. Confirm the check code, and perform checking following the diagnostic procedure for that check code.
3. In the event of the 7-segment display of the header unit being check code [E28. ∗ ∗], there is an abnormality occurring at a follower unit. Push the push-switch SW04 of the header unit for several seconds. The outdoor fan will run only in the outdoor unit where the trouble has occurred, so open the panel of the unit where the fan is running, and confirm the check code of the 7-segment display.
4. Perform checking following the diagnostic procedure for that check code.

* To check the check code, set the rotary switches SW01/SW02/SW03 to [1/1/1].

2 Check the check code and follow the applicable diagnostic procedure.

(1) Display of System Information (Displayed on Header Outdoor Unit Only)

SW01	SW02	SW03	Display detail				
1	1	3	–	–			
	2		System capacity	A	[…8]~[..24] : 8 to 24 HP		
				B	[HP]		
	3		No. of outdoor units	A	[…1] : 1		
				B	[…P]		
	4		No. of indoor units connected / No. of units with cooling thermostat ON	(1) [... ... ... 0] ~ [... ... 69] : 0 ~ 69 (Number of connected units) (2) [C ... ... 0] ~ [C ... 69] : 0 ~ 69 (Number of cooling thermostat ON) *Switch the display of (1) and (2) with SW04		
	5		No. of indoor units connected / No. of units with heating thermostat ON	(1) [... ... ... 0] ~ [... ... 128] : 0 ~ 128 (Number of connected units) (2) [H ... ... 0] ~ [H ... 128] : 0 ~ 128 (Number of heating thermostat ON) *Switch the display of (1) and (2) with SW04		
	6		Amount of compressor command correction	A	Value displayed in hexadecimal format		
				B			
	7		Release control	A	Normal: [r. …], During release control: [r.1]		
				B	–		
	8		Oil equalization control	Normal: [oiL-0]			
				During oil equalization control: [oiL-1]			
	9		–		–		
	10		Refrigerant/oil recovery operation	A	Oil recovery in cooling: [C1], Normal: [C …]		
				B	Refrigerant recovery in heating: [H1], Normal: [H …]		
	11		Automatic addressing	A	[Ad]		
				B	During automatic addressing: [… FF], Normal: [… … …]		
	12		Power peak-cut	A	[dU]		
					Normal: [… … …], During 50-90% capacity operation: [_50-_90] While control is based on BUS line input: [E50-E90]		
	13		Optional control (P.C. board input)	Displays optional control status		A	B
				Operation mode selection: During priority heating (normal)		h.*.	*.*.*.
					Priority cooling	c.*.	*.*.*.
					Heating only	H.*.	*.*.*.
					Cooling only	C.*	*.*.*.
					Priority given to No. of indoor units in operation	n.*.	*.*.*.
					Priority given to specific indoor unit	U.*.	*.*.*.
				External master ON/OFF: Normal		*.....	*.*.*.
					Start input	*.1.	*.*.*.
					Stop input	*.0.	*.*.*.
				Night operation: Normal		*.*.	....*.*.
					Start input	*.*.	1.*.*.
				Snowfall operation: Normal		*.*.	*.....*.
					Start input	*.*.	*.1.*.
	14		Optional control (BUS line input)	Same as above			
	15		–	–			
			–	A	–		
				B	–		
		15	No. of Indoor units recorded on the I/F P.C.board	A	[i. o.]		
				B	[… … …0] to [1 2 8]		

(2) Display of Outdoor Unit Information (Displayed on Each Outdoor Unit)

SW01	SW02	SW03	Display detail				
1	1	1	Check code data	A	Outdoor unit No.: [U1]		
				B	If there is no check code, [U. ∗. − − −] is displayed. If there is check code, [U. ∗. err] ⇔ [OOO]. [△△] ([OOO] : Check code, [△△] : Sub-code) . . . (The display switches alternately) (∗: Outdoor unit No.)		
			<SW04> push SW function: Fan operation at outdoor unit with trouble. 7-segment display section A: [E.1] <SW04 + SW05> push SW function: Fan operation at outdoor unit without trouble. 7-segment display section A: [E.0] <SW05> push SW function: Fan operation function check mode is cancelled.				
	2		–	A	–		
				B	–		
	3		Operation mode	A	Stop [… …] All cooling: [… C], All heating: [… H], defrosting: [… J] Simultaneous cooling: [… Ch], Simultaneous heating: [… Hc]		
				B	–		
	4		Outdoor unit HP capacity	A	8HP: [… 8], 10HP: [… 10], 12HP: [… 12], 14HP: [14], 16HP: [16], 18HP: [18], 20HP: [20], 22HP: [22], 24HP: [24]		
				B	[…HP]		
	5		Compressor operation command*Operation data of each compressor is displayed in turn in 2 second intervals.				
			Normal: Compressor speed (rps) is displayed in decimal format. 7-segment display (A/B): [C1. ... ...] ⇒ [... ∗ ∗ ∗, ∗] ⇒ [C2. ... ...] ⇒ [... ∗ ∗ ∗, ∗]				
			<SW04> push SW function: Switches to display of operating current (decimal value). 7-segment display (A/B): [i1 . ...] ⇒ [...****] ⇒ [i2. ... ...] ⇒ [...****] Pressing of <SW05> restores normal display.				
	6		Outdoor fan mode	A	[FP]		
				B	Mode 0 to 63: [… 0] to [63]		
	7		Compressor backup	A	[C.b.]		
				B	Displays compressor backup setting status Normal: [… … …] Compressor No. 1 backup: [1 … …] Compressor No. 2 backup: [… 1 …]		
	8		–	A	–		
				B	–		
	9		Control valve output data	Displays control output status of solenoid valve		A	B
				4-way valve: ON :1, OFF : 0 4WV1 / 4WV2 / 4WV3		H...	1/1/1
	10			SV2 : ON		2	1/../..
	11			SV3D: ON / SV3F: OFF / SV7:ON		37	1/0/1
	12			SV41: ON / SV42: OFF		4..	1/0
	13			—		—	—
	14			PMV1 PMV2 PMV3		P1 P2 P3	**P **P **P
	15			PMV4 PMV5 PMV6		P4 P5 P6	**P **P **P
	16		Oil level judgment status				
			Normal	A	[o L.]		
				B	Initial display: [… … …], Oil level judgment result: [#.∗.$] Displayed letters #, ∗ and $ represent judgment results for compressor Nos. 1 and 2, respectively (“0” for normal and “1” or “2” for low level).		
			<SW04> push SW function: Displays low level confirmed judgment result of each compressor.				
			*Pressing of <SW05> restores normal display.	A	[L d.]		
				B	Compressor No. 1 low level being confirmed: [L … …] Compressor No. 2 low level being confirmed: [… L …]		
			<SW15> push SW function : for 2 seconds, change display to low level judgement timer				
			*Pressing of <SW05> restores normal display	A	[T …,]		
				B	Low level judgment timer : [120] (i.e. : 120 minutes)		

(3) Display of Outdoor Cycle Data (Displayed at Each Outdoor Unit)

SW01	SW02	SW03	Display detail			A	B
1	1	2	Pd pressure data	Pd pressure (MPaG) is displayed in decimal format. (MPaG: Approx. 10 times magnitude of kg/cm^{2}G)		P d.	∗. ∗ ∗
	2		Ps pressure data	Ps pressure (MPaG) is displayed in decimal format.		P s.	∗. ∗ ∗
	3		PL pressure conversion data	Converted PL pressure (MPaG) is displayed in decimal format.		P L.	∗. ∗ ∗
	4		TD1 sensor data	Temperature sensor reading (°C) is displayed in decimal format. • Letter symbol and data are displayed alternately, for 1 second and display for 3 seconds, respectively. • Data is displayed in [∗]. • Data with negative value is displayed as [– ∗].	Letter symbol	t d	1 ... ...
					Data	∗	∗. ∗ ∗
	5		TD2 sensor data		Letter symbol	t d	2 ... ...
					Data	∗	∗. ∗ ∗
	7		TS1 sensor data		Letter symbol	t S	1 ... ...
					Data	∗	∗. ∗ ∗
	8		TS2 sensor data		Letter symbol	t S	2 ... ...
					Data	∗	∗. ∗ ∗
	9		TS3 sensor data		Letter symbol	t S	3 ... ...
					Data	∗	∗. ∗ ∗
	10		TE1 sensor data		Letter symbol	t E	1 ... ...
					Data	∗	∗. ∗ ∗
	11		TE2 sensor data		Letter symbol	t E	2 ... ...
					Data	∗	∗. ∗ ∗
	12		TE3 sensor data		Letter symbol	t E	3 ... ...
					Data	∗	∗. ∗ ∗
	13		TL1 sensor data		Letter symbol	t L	1 ... ...
					Data	∗	∗. ∗ ∗
	14		TL2 sensor data		Letter symbol	t L	2 ... ...
					Data	∗	∗. ∗ ∗
	15		TL3 sensor data		Letter symbol	t L	3 ... ...
					Data	∗	∗. ∗ ∗
	16		TO sensor data		Letter symbol	t o	... ...
					Data	∗	∗. ∗ ∗

SW01	SW02	SW03		Display detail			
1	1	5	TK1 sensor data	Temperature sensor reading (°C) is displayed in decimal format.	Letter symbol	F 1	... ...
					Data	∗	∗. ∗ ∗
	2		TK2 sensor data		Letter symbol	F 2	... ...
					Data	∗	∗. ∗ ∗
	6		TG1 sensor data		Letter symbol	t G	1 ... ...
					Data	∗	∗. ∗ ∗
	7		TG2 sensor data		Letter symbol	t G	2 ... ...
					Data	∗	∗. ∗ ∗
	8		TG3 sensor data		Letter symbol	tG	3 ... ...
					Data	∗	∗. ∗ ∗
	9		Predicted TK1 (TK1_Pre data)		Letter symbol	F1	PrE
					Data	∗	∗. ∗ ∗
	10		Predicted TK2 (TK2_Pre data)		Letter symbol	F2	PrE
					Data	∗	∗. ∗ ∗

(4) Display of Indoor Unit Information (Displayed on Header Unit Only)

SW01	SW02	SW03	Display detail		
4	1~16	1~8	Indoor check code	B	No check code : [- - -]
			Indoor BUS communication signal receiving status	B	Upon receiving signal : [... ... 1], Other times : [..... ...]
5			Indoor HP capacity	B	... 0.3, ...0.4, ...0.5, ...0.6 ... 0.8, ...1.0, ...1.2, ...1.7, ...2.0 ... 2.5, ...3.0, ...3.2, ...4.0, ...5.0 ... 6.0, ...8.0, ...10.0, ...16.0, ...20.0
			Indoor request command (S code, operation mode)	B	[#.... *] # represents mode : COOL : [C. ... *], HEAT : [H … F] FAN : [F. ... *], OFF : [S … *] * represents S code : [#. … 0] to [#. … F]
6			Indoor PMV opening data	B	Displayed in decimal format
7			Indoor temperature sensor data1	B	Switch temperature display of TA, TCJ, TC1 and TC2 with SW06
8			Indoor temperature sensor data2	B	Switch temperature display of TF, TA2 and TA3 with SW06
9	1	1	Outdoor DN code setting		Outdoor DN code setting

Note: Indoor address No. is selected by setting SW02 and SW03 and displayed on 7-segment display, section A.

SW02	SW03	Indoor address	7-segment display section A
1 ~ 16	1	SW02 setting number	[01] ~ [16]
1 ~ 16	2	SW02 setting number +16	[17] ~ [32]
1 ~ 16	3	SW02 setting number +32	[33] ~ [48]
1 ~ 16	4	SW02 setting number +48	[49] ~ [64]
1 ~ 16	5	SW02 setting number +64	[65] ~ [80]
1 ~ 16	6	SW02 setting number +80	[81] ~ [96]
1 ~ 16	7	SW02 setting number +96	[97] ~ [112]
1 ~ 16	8	SW02 setting number +112	[113] ~ [128]

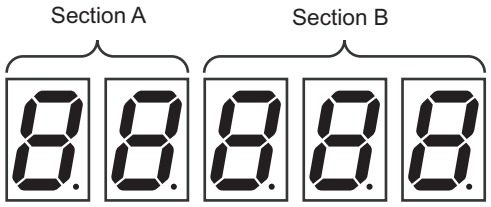
(5) Display of Outdoor EEPROM Writing Check Code

* The latest check code written in the EEPROM of outdoor unit is displayed.
  (This function is used to check the trouble code after the resetting of the power supply.)

To display the check code, push SW04 and hold for at least 5 seconds after setting SW01 to 03 as shown in the table below.

SW01	SW02	SW03	Indoor address	7-segment display section A	
1	1	16	Latest check code (U1)	E. 1.	***

• 7-Segment Display



Set SW01/SW02/SW03 to [1/1/16] and push SW04 and hold for at least 5 seconds. The latest check code of the header unit (U1) will be displayed.

8-7. Oil Level Judgment Display

The current compressor oil level judgment results can be accessed by setting the switches provided on the interface P.C. board of an outdoor unit.

Perform the checks in accordance with the procedure described below.

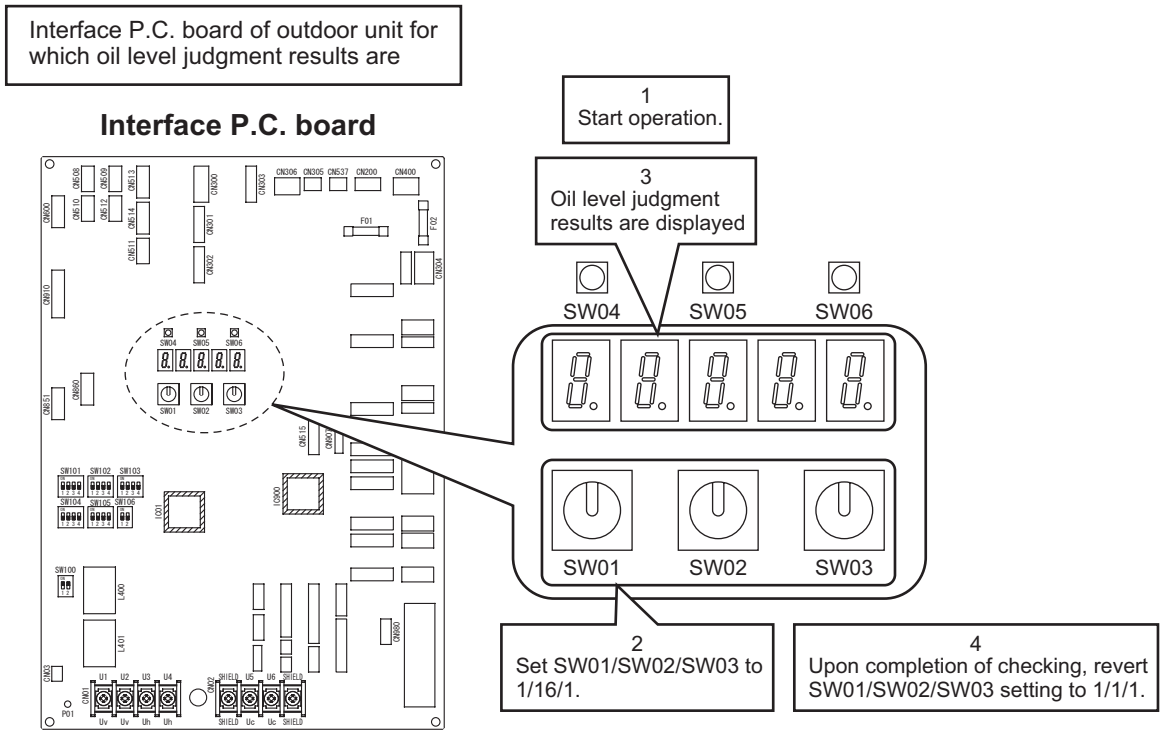
1 Operation Procedure

(1) Start the operation.

(2) Set the switches provided on the interface P.C. board of the outdoor unit for which oil level judgment results are required as follows: SW01/SW02/SW03 = 1/16/1

(3) The oil level judgment result will be displayed on the 7-segment display. 7-segment display: [oL] [# * ...]
The letters #, and * are digits that represent judgment results for compressor Nos. 1 and 2, respectively.
(See the table below for the interpretation of the judgment results.)

(4) When checking is completed, revert the SW01/SW02/SW03 setting to [1/1/1].



2 Oil Level Judgment Results

Displayed digit	Judgment result	Description
0	Normal	The amount of oil in the compressor is sufficient.
1 2	Low level	The amount of oil in the compressor is insufficient. (Both “1” and “2” stand for insufficiency.) If this result persists, the system will turn itself off in a protective shutdown.

Display example

7-segment display [oL] [0 0 ...] Oil level is normal for compressors 1 and 2.
[oL] [2 2 ...] Oil level is low for compressors 1 and 2.
[oL] [0 2 ...] Oil level is low for compressor 2 and normal for compressors 1.

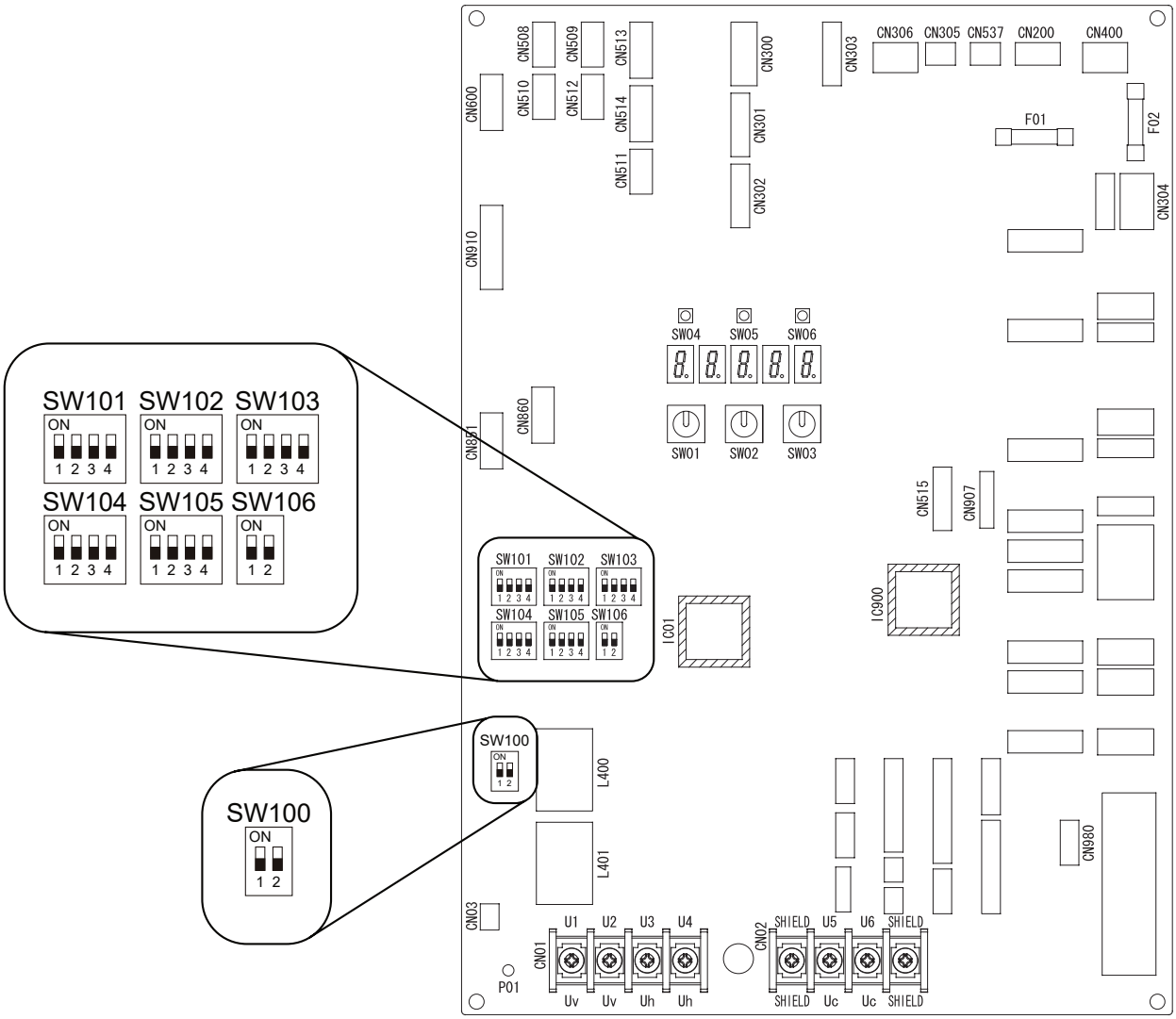
Judgment result for compressor 2
Judgment result for compressor 1

8-8. SHRM-A Outdoor Interface P.C. Board Function Setting Change Table

1. Switch/Function Setting Change

SW No.		Change contents		
SW100	DIP SW 2 bit	bit1	Uh communication termination resistance for central control	OFF: No termination resistance ON: With termination resistance
		bit2	Uv communication termination resistance between indoor and outdoor units	OFF: No termination resistance ON: With termination resistance
SW101	DIP SW 4 bit	bit1	Setup of header outdoor unit	OFF: Follower outdoor unit ON: Header outdoor unit
		bit2	Line address setup	* Used by combining with SW102 (4 bit)
		bit3		
		bit4		
SW102	DIP SW 4 bit	bit1	Line address setup	* Used by combining with SW101 (3 bit)
		bit2		
		bit3		
		bit4		
SW103	DIP SW 4 bit	bit1	Compressor 1 backup	OFF: Normal ON: Compressor 1 Backup when compressor 1 was in trouble
		bit2	Compressor 2 backup	OFF: Normal ON: Compressor 2 Backup when compressor 2 was in trouble
				* All bit1 and 2 are ON : Setup of outdoor unit backup
		■ In case of header outdoor unit		
		Bit3	Trouble judgment for over-capacity of indoor unit connection	OFF: Trouble judgement (Normal) ON: None (When outdoor unit backup set)
		bit4	Trouble judgment for No. of connected indoor units	OFF: None ON: Trouble judgement
SW104	DIP SW 4 bit	bit1	Heat Pump/Heat Recover setting	OFF : Heat Recovery ON : Heat Pump
		bit2		
		bit3		
		bit4		
SW105	DIP SW 4 bit	bit1	Corresponds to 2-core wire	OFF: Normal (3-core wire <Successive MAKE signal> or 4-core wire <Pulse signal>) ON: 2-core wire <Successive MAKE signal : Use only ON input terminal>
		bit2	Demand control (Expansion change)	OFF: Normal demand (1 type) ON: Intermediate demand (3 types)
		bit3		
		bit4		
SW106	DIP SW 4 bit	bit1	Change of EEPROM data backup function	OFF: Normal ON: No data backup
		bit2	Communication setup reset	OFF: Normal ON: Reset of communication setup and communication termination resistance between indoor units

Interface Board Switches and jumper wire positions to be used in the Function setup switching table



List of Check Codes Generated upon Occurrence of Leakage/Clogging in Outdoor Cycle or Oil Circuit Part (MMY-SUG0801*, 1001*, 1201*, 1401*)

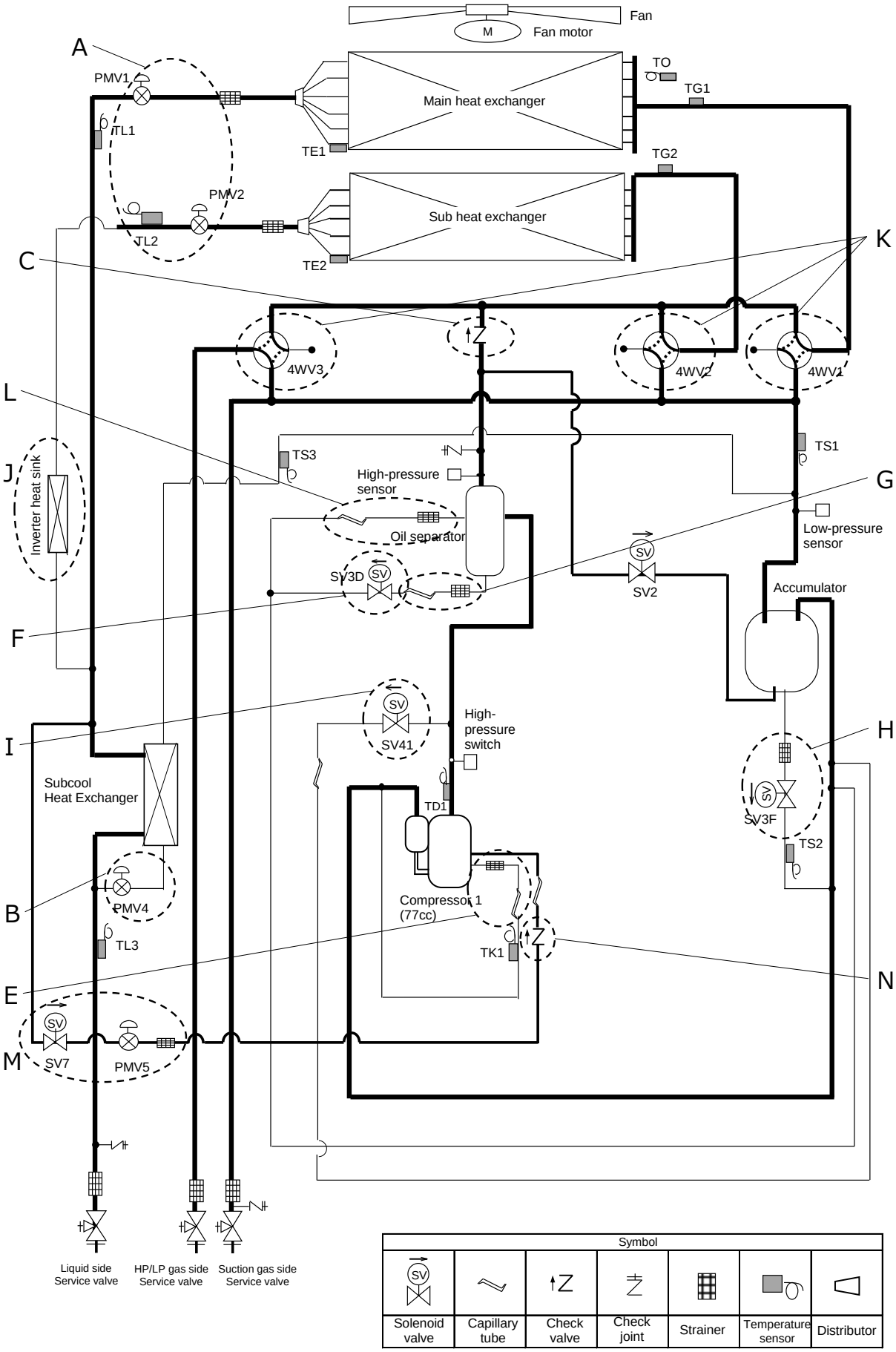
Clogging

Part	Location of Problem (Refer to next page)	Unit generating check code	Detected problem and check code		Symptom
Outdoor PMV1, 2, 3	A	Corresponding unit	Activation of high-pressure protection Activation of low-pressure protection Discharge temp. trouble (TD1)	P20 H06 P03	Rise of pressure Fall of pressure Rise of discharge temp. (Compressor 1)
Outdoor PMV4	B	Corresponding unit	Discharge temp. trouble (TD1)	P03	Rise of discharge temp. (Compressor 1)
Check valve in discharge pipe convergent section	C	Corresponding unit	High-pressure protection trouble High-pressure SW system trouble	P20 P04-01	Abnormal rise of pressure
Oil-equalization circuit Capillary or Strainer	E	Corresponding unit	Oil level detection circuit trouble Oil level low detection and protection	H16-01 H07	Oil circuit trouble or Oil level low
SV3D valve	F	Corresponding unit	Oil level low detection and protection	H07	Oil level low
SV3D valve circuit Capillary or Strainer	G	Corresponding unit	Oil level low detection and protection	H07	Oil level low
SV3F valve or SV3F valve circuit Strainer	H	Corresponding unit	Oil level low detection and protection	H07	Oil level low
SV41 valve	I	Corresponding unit	High-pressure protection trouble	P20	Rise of pressure
Inverter heat sink	J	Corresponding unit	Heat sink overheating trouble	P07-01	Rise of IPM (TH) temp. (Compressor 1)
Oil return circuit capillary or strainer	L	Corresponding unit	Oil level low detection and protection	H07	Oil level low
Injection circuit	M	Corresponding unit	Discharge temp trouble (TD1)	P03 P16- XX	Rise of discharge temp (compressor1)
Check valve in injection pipe	N	Corresponding unit	Discharge temp trouble (TD1)	P03	Rise of discharge temp (compressor1)

Leakage

Part	Location of Problem (Refer to next page)	Unit generating check code	Detected problem and check code		Symptom
Outdoor PMV1, 2	A	Corresponding unit	Outdoor liquid backflow trouble Oil level low detection and protection	P13 H07	Refrigerant entrapment
		Other connected unit	Discharge temp. trouble (TD1)	P03	Rise of discharge temp. (Compressor 1)
Outdoor PMV4	B	Corresponding unit	Outdoor liquid backflow trouble Oil level low detection and protection	P13 H07	Oil level low
Check valve in discharge pipe convergent section	C	Corresponding unit	Oil level low detection and protection Compressor breakdown Compressor trouble (lockup)	H07 H01-01 H02-01	Refrigerant entrapment
SV41 valve	I	Corresponding unit	Discharge temp. trouble (TD1)	P03	Rise of discharge temp. (Compressor 1)
4-way valve	K	Corresponding unit	4-way valve reversing trouble Gas leak detection	P19 P15	Incorrect internal position of 4-way valve
Injection circuit	M	Corresponding unit	Oil level low detection and protection Compressor breakdown	H07 H01-01 P16-XX	Refrigerant entrapment

Outdoor Unit (8, 10, 12, 14HP)
Model: MMY-SUG0801*, 1001*, 1201*, 1401*



Symbol						
Solenoid valve	Capillary tube	Check valve	Check joint	Strainer	Temperature sensor	Distributor

List of Check Codes Generated upon Occurrence of Leakage/Clogging in Outdoor Cycle or Oil Circuit Part (MMY-SUG1601*,1801*, 2001*, 2201*, 2401*)

Clogging

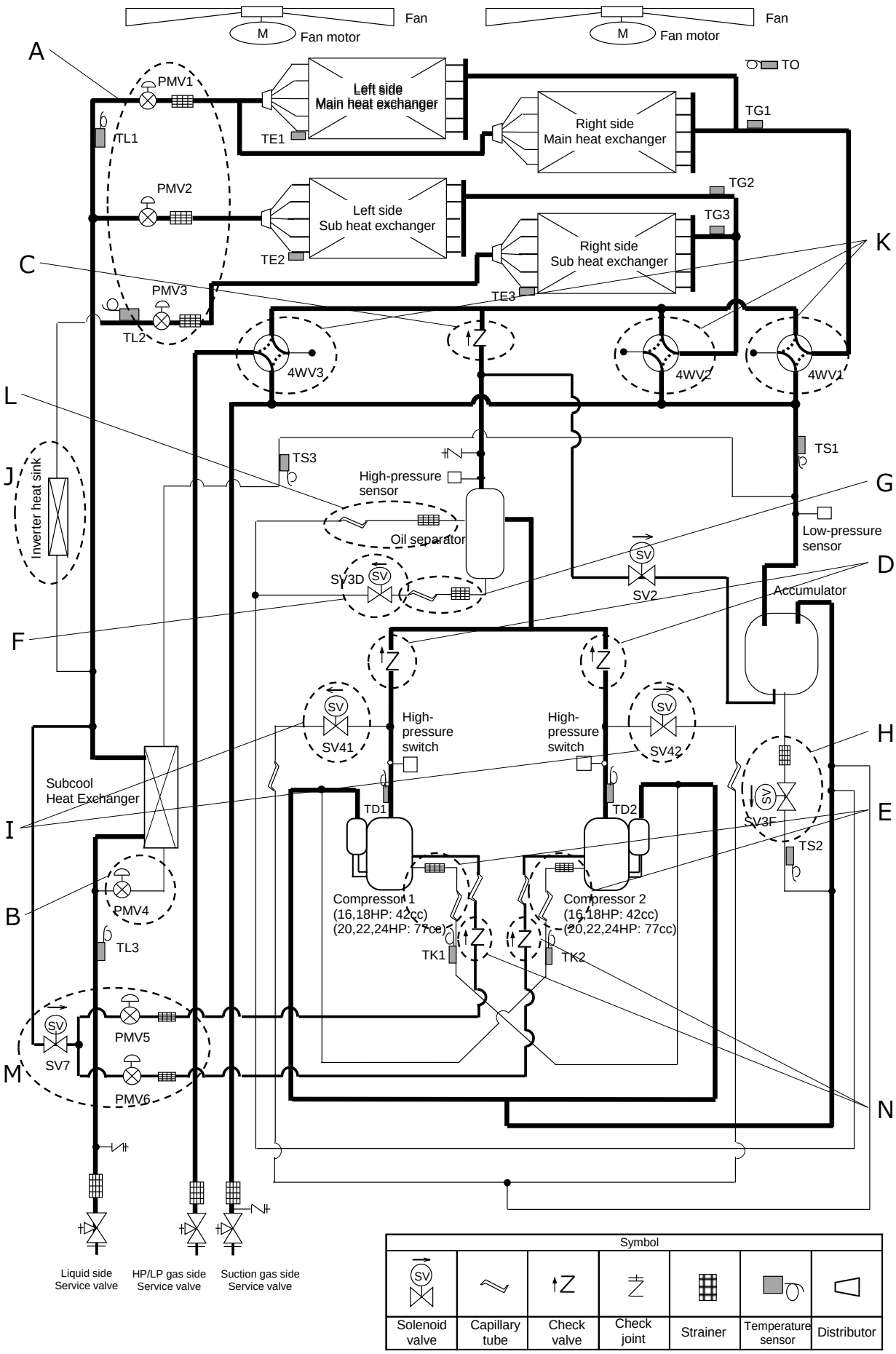
Part	Location of Problem (Refer to next page)	Unit generating check code	Detected problem and check code		Symptom
Outdoor PMV1, 2, 3	A	Corresponding unit	Activation of high-pressure protection Activation of low-pressure protection Discharge temp. trouble (TD1) Discharge temp. trouble (TD2)	P20 H06 P03 P17	Rise of pressure Fall of pressure Rise of discharge temp. (Compressor 1) Rise of discharge temp. (Compressor 2)
Outdoor PMV4	B	Corresponding unit	Discharge temp. trouble (TD1) Discharge temp. trouble (TD2)	P03 P17	Rise of discharge temp. (Compressor 1) Rise of discharge temp. (Compressor 2)
Check valve in discharge pipe convergent section	C	Corresponding unit	High-pressure protection trouble High-pressure SW system trouble	P20 P04-XX	Abnormal rise of pressure
Check valve in discharge pipe	D	Corresponding unit	High-pressure SW system trouble	P04-XX	Abnormal rise of pressure
Oil-equalization circuit Capillary or Strainer	E	Corresponding unit	Oil level detection circuit trouble Oil level low detection and protection	H16-XX H07	Oil circuit trouble or Oil level low
SV3D valve or SV3F valve circuit Strainer	F	Corresponding unit	Oil level low detection and protection	H07	Oil level low
SV3D valve circuit Capillary or Strainer	G	Corresponding unit	Oil level low detection and protection	H07	Oil level low
SV3F valve or SV3F valve circuit Strainer	H	Corresponding unit	Oil level low detection and protection	H07	Oil level low
SV41, 42 valve	I	Corresponding unit	High-pressure protection trouble	P20	Rise of pressure
Inverter heat sink	J	Corresponding unit	Heat sink overheating trouble	P07-XX	Rise of IPM (TH) temp.
Oil-Return circuit Capillary or Strainer	L	Other connected unit	Outdoor liquid back flow trouble	P13	Oil level low
Injection circuit	M	Corresponding unit	Discharge temp trouble (TD1) Discharge temp trouble (TD2)	P03 P16-XX P17 P16-XX	Rise of discharge temp. (Compressor1) Rise of discharge temp. (Compressor2)
Check valve in Injection circuit	N	Corresponding unit	Discharge temp trouble (TD1) Discharge temp trouble (TD2)	P03 P17	Rise of discharge temp. (Compressor1) Rise of discharge temp. (Compressor2)

Leakage

Part	Location of Problem (Refer to next page)	Unit generating check code	Detected problem and check code		Symptom
Outdoor PMV1, 2	A	Corresponding unit	Outdoor liquid backflow trouble Oil level low detection and protection	P13 H07	Refrigerant entrapment
		Other connected unit	Discharge temp. trouble (TD1) Discharge temp. trouble (TD2)	P03 P17	Rise of discharge temp. (Compressor 1) Rise of discharge temp. (Compressor 2)
Outdoor PMV4	B	Corresponding unit	Outdoor liquid backflow trouble Oil level low detection and protection	P13 H07	Oil level low
Check valve in discharge pipe convergent section	C	Corresponding unit	Oil level low detection and protection Compressor breakdown Compressor trouble (lockup)	H07 H01-XX H02-XX	Refrigerant entrapment
Check valve in discharge pipe	D	Corresponding unit	Oil level low detection and protection Compressor breakdown Compressor trouble (lockup)	H07 H01-XX H02-XX	Refrigerant entrapment
SV41, 42 valve	I	Corresponding unit	Discharge temp. trouble (TD1) Discharge temp. trouble (TD2)	P03 P17	Rise of discharge temp. (Compressor 1) Rise of discharge temp. (Compressor 2)
4-way valve	K	Corresponding unit	4-way valve reversing trouble Gas leak detection	P19 P15	Incorrect internal position of 4-way valve
Injection circuit	M	Corresponding unit	Oil level low detection and protection Compressor breakdown	H07 H01-XX H16-XX	Refrigerant entrapment

Outdoor Unit (16, 18, 20, 22, 24HP)

Model: MMY-SUG1601*, 1801*, 2001*, 2201*, 2401*

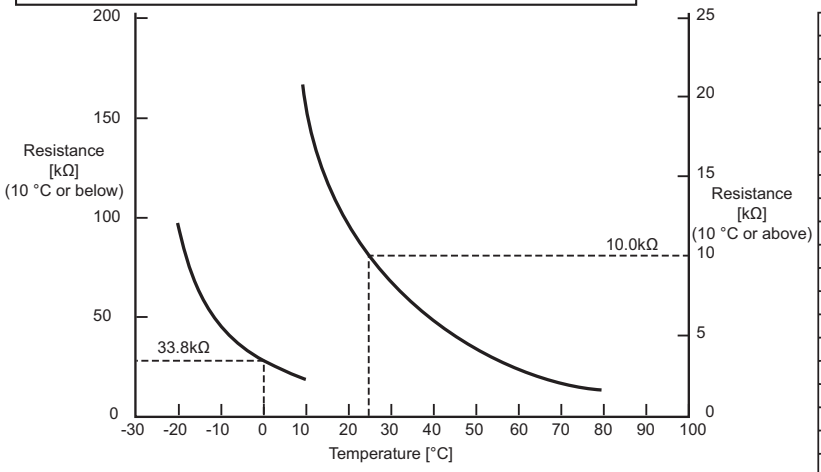


8-9. Sensor Characteristics

Outdoor Unit

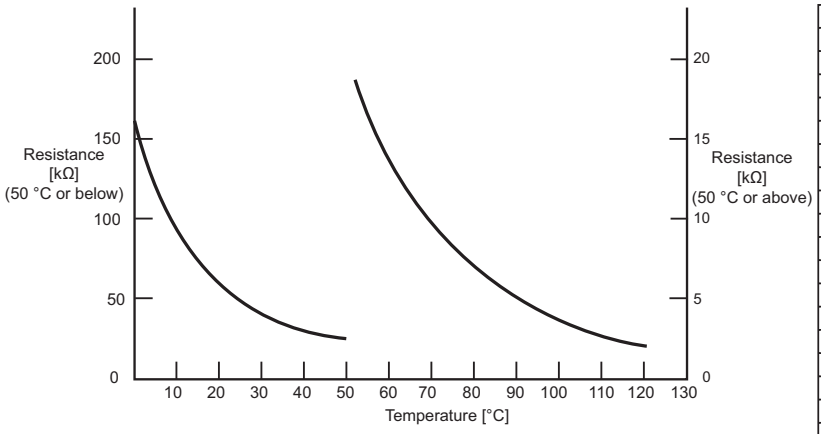
▼ Temperature sensor characteristics

Outdoor TS1, TS2, TS3, TE1, TE2, TE3, TL1, TL2, TL3 and TO sensors



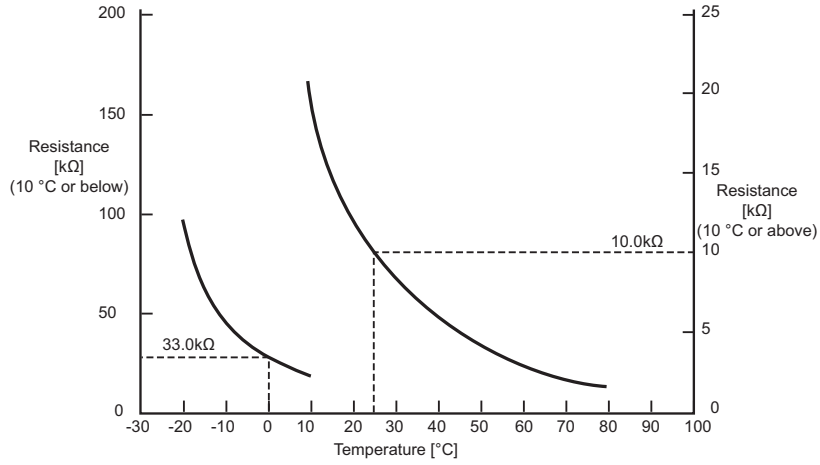
Temperature [°C]	Resistance [kΩ]
-20	101.7
-15	76.3
-10	57.7
-5	44.0
0	33.8
5	26.1
10	20.4
15	16.0
20	13.0
25	10.0
30	8.0
35	6.4
40	5.2
45	4.2
50	3.5
55	2.8
60	2.3
65	1.9
70	1.6
75	1.4
80	1.1

Outdoor TD1, TD2, TK1 and TK2 sensors



Temperature [°C]	Resistance [kΩ]
0	162.2
5	125.8
10	98.3
15	77.5
20	61.5
25	49.1
30	39.5
35	32.0
40	26.1
45	21.4
50	17.6
55	14.6
60	12.1
65	10.2
70	8.5
75	7.2
80	6.1
85	5.2
90	4.5
95	3.8
100	3.3
105	2.9
110	2.5
115	2.2
120	1.9

Outdoor TG1, TG2 and TG3 sensors



Temperature [°C]	Resistance [kΩ]
-20	98.9
-15	74.1
-10	56.1
-5	42.8
0	33.0
5	25.6
10	20.0
15	15.8
20	12.5
25	10.0
30	8.0
35	6.5
40	5.3
45	4.4
50	3.6
55	3.0
60	2.5
65	2.1
70	1.7
75	1.5
80	1.3

Outdoor Unit

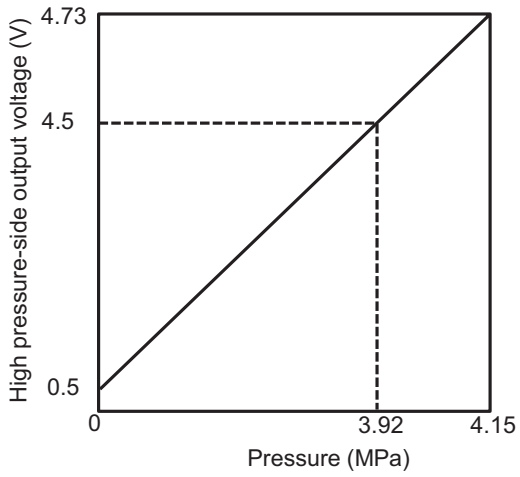
▼ Pressure sensor characteristics

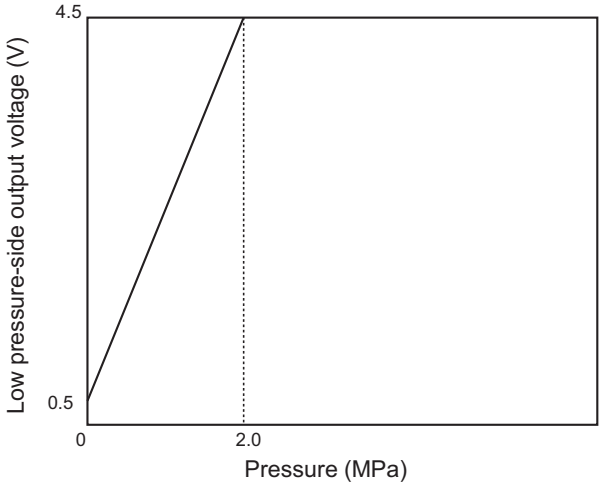
• Input/output wiring summary

Pin No.	High pressure side (PD)		Low pressure side (PS)	
	Input/output name	Lead wire color	Input/output name	Lead wire color
1	OUTPUT	White	—	—
2	—	—	OUTPUT	White
3	GND	Black	GND	Black
4	+5V	Red	+5V	Red

• Output voltage vs. pressure

High pressure side (PD)	Low pressure side (PS)
0.5~4.5V 0~3.92MPa	0.5~4.5V 0~2.0MPa

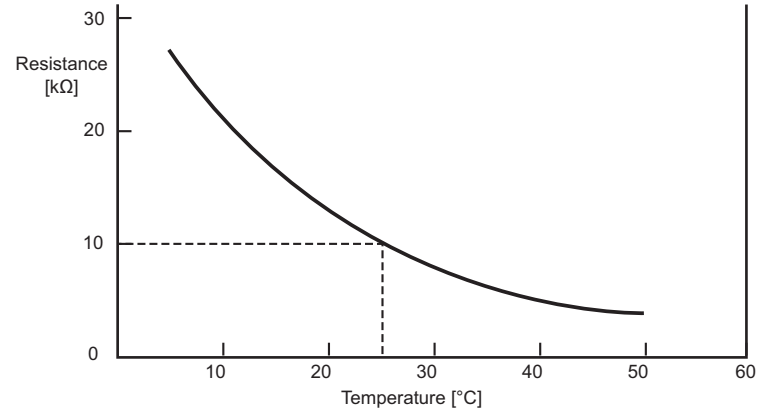




Indoor Unit

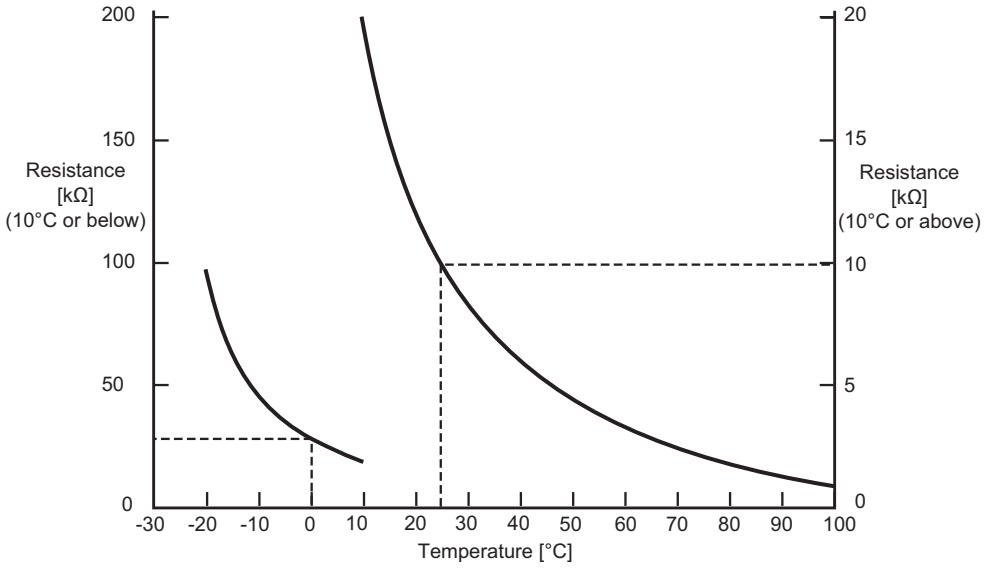
▼ Temperature sensor characteristics

Indoor TA(TSA), TRA,TF(TFA) sensor



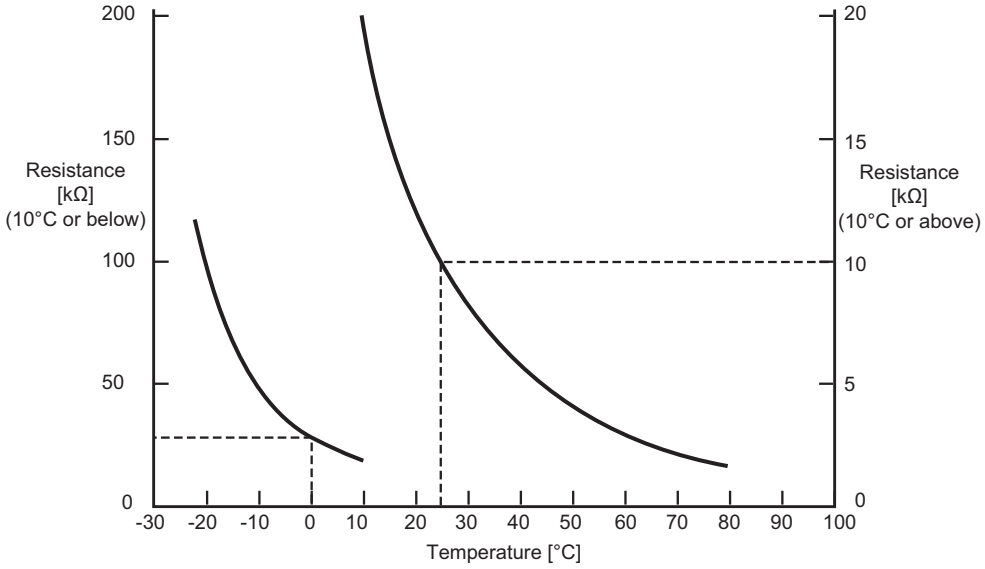
Temperature [°C]	Resistance [kΩ]
0	33.8
5	26.1
10	20.4
15	16.0
20	12.6
25	10.0
30	8.0
35	6.4
40	5.2
45	4.2
50	3.5
55	2.8
60	2.3

Indoor TC1 sensor



Temperature [°C]	Resistance [kΩ]
-20	98.3
-15	73.7
-10	55.8
-5	42.6
0	32.8
5	25.5
10	20.0
15	15.7
20	12.5
25	10.0
30	8.1
35	6.5
40	5.3
45	4.4
50	3.6
55	3.0
60	2.5
65	2.1
70	1.7
75	1.5
80	1.2
85	1.1
90	0.9
95	0.8
100	0.7

Indoor TC2 and TCJ, TOA sensor



Temperature [°C]	Resistance [kΩ]
-20	102.9
-15	76.6
-10	57.7
-5	44.0
0	38.8
5	26.1
10	20.4
15	16.0
20	12.6
25	10.0
30	8.0
35	6.4
40	5.2
45	4.2
50	3.5
55	2.8
60	2.3
65	1.9
70	1.6
75	1.4
80	1.2

8-10. Pressure Sensor Output Check

Outdoor Unit

▼ Pd sensor characteristics

0 to 4.15 MPa (0.5 to 4.73V output for 0 to 4.15 MPa)
Voltage readings across pins 2 and 3 of CN501 on indoor unit main P.C. board (with negative-side probe of multimeter placed on pin 3)

VOLT	Pd (MPa)	Pd (kg/cm^2)	VOLT	Pd (MPa)	Pd (kg/cm^2)	VOLT	Pd (MPa)	Pd (kg/cm^2)	VOLT	Pd (MPa)	Pd (kg/cm^2)	VOLT	Pd (MPa)	Pd (kg/cm^2)
0.00	0.00	0.0	1.00	0.49	5.0	1.99	1.46	14.9	2.99	2.44	24.9	3.98	3.42	34.8
0.02	0.00	0.0	1.02	0.51	5.2	2.01	1.48	15.1	3.01	2.46	25.1	4.00	3.44	35.0
0.04	0.00	0.0	1.04	0.53	5.4	2.03	1.50	15.3	3.03	2.48	25.3	4.02	3.45	35.2
0.06	0.00	0.0	1.06	0.54	5.5	2.05	1.52	15.5	3.05	2.50	25.5	4.04	3.48	35.4
0.08	0.00	0.0	1.07	0.56	5.7	2.07	1.54	15.7	3.07	2.52	25.7	4.06	3.49	35.6
0.10	0.00	0.0	1.09	0.58	5.9	2.09	1.56	15.9	3.09	2.54	25.9	4.08	3.51	35.8
0.12	0.00	0.0	1.11	0.60	6.1	2.11	1.58	16.1	3.11	2.56	26.1	4.10	3.53	36.0
0.14	0.00	0.0	1.13	0.62	6.3	2.13	1.60	16.3	3.13	2.57	26.3	4.12	3.55	36.2
0.16	0.00	0.0	1.15	0.64	6.5	2.15	1.62	16.5	3.15	2.59	26.4	4.14	3.57	36.4
0.18	0.00	0.0	1.17	0.66	6.7	2.17	1.64	16.7	3.16	2.61	26.6	4.16	3.59	36.6
0.20	0.00	0.0	1.19	0.68	6.9	2.19	1.66	16.9	3.18	2.63	26.8	4.18	3.61	36.8
0.22	0.00	0.0	1.21	0.70	7.1	2.21	1.67	17.1	3.20	2.65	27.0	4.20	3.63	37.0
0.23	0.00	0.0	1.23	0.72	7.3	2.23	1.69	17.3	3.22	2.67	27.2	4.22	3.65	37.2
0.25	0.00	0.0	1.25	0.74	7.5	2.25	1.71	17.5	3.24	2.69	27.4	4.24	3.67	37.4
0.27	0.00	0.0	1.27	0.76	7.7	2.27	1.73	17.7	3.26	2.71	27.6	4.26	3.69	37.6
0.29	0.00	0.0	1.29	0.77	7.9	2.29	1.75	17.9	3.28	2.73	27.8	4.28	3.70	37.8
0.31	0.00	0.0	1.31	0.79	8.1	2.31	1.77	18.0	3.30	2.75	28.0	4.30	3.72	38.0
0.33	0.00	0.0	1.33	0.81	8.3	2.32	1.79	18.2	3.32	2.77	28.2	4.32	3.74	38.2
0.35	0.00	0.0	1.35	0.83	8.5	2.34	1.81	18.4	3.34	2.79	28.4	4.34	3.76	38.4
0.37	0.00	0.0	1.37	0.85	8.7	2.36	1.83	18.6	3.36	2.80	28.6	4.36	3.78	38.6
0.39	0.00	0.0	1.39	0.87	8.9	2.38	1.85	18.8	3.38	2.82	28.8	4.38	3.80	38.8
0.41	0.00	0.0	1.41	0.89	9.1	2.40	1.87	19.0	3.40	2.84	29.0	4.40	3.82	38.9
0.43	0.00	0.0	1.43	0.91	9.3	2.42	1.89	19.2	3.42	2.86	29.2	4.41	3.84	39.1
0.45	0.00	0.0	1.45	0.93	9.5	2.44	1.90	19.4	3.44	2.88	29.4	4.43	3.86	39.3
0.47	0.00	0.0	1.47	0.95	9.6	2.46	1.92	19.6	3.46	2.90	29.6	4.45	3.88	39.5
0.49	0.00	0.0	1.48	0.97	9.8	2.48	1.94	19.8	3.48	2.92	29.8	4.47	3.90	39.7
0.51	0.01	0.1	1.50	0.99	10.0	2.50	1.96	20.0	3.50	2.94	30.0	4.49	3.92	39.9
0.53	0.03	0.3	1.52	1.00	10.2	2.52	1.98	20.2	3.52	2.96	30.2	4.51	3.93	40.1
0.55	0.05	0.5	1.54	1.02	10.4	2.54	2.00	20.4	3.54	2.98	3.04	4.53	3.95	40.3
0.57	0.07	0.7	1.56	1.04	10.6	2.56	2.02	20.6	3.56	3.00	30.5	4.55	3.97	40.5
0.59	0.08	0.9	1.58	1.06	10.8	2.58	2.04	20.8	3.57	3.02	30.7	4.57	3.99	40.7
0.61	0.10	1.1	1.60	1.08	11.0	2.60	2.06	21.0	3.59	3.03	30.9	4.59	4.01	40.9
0.63	0.12	1.3	1.62	1.10	11.2	2.62	2.08	21.2	3.61	3.05	31.1	4.61	4.03	41.1
0.65	0.14	1.4	1.64	1.12	11.4	2.64	2.10	21.4	3.63	3.07	31.3	4.63	4.05	41.3
0.66	0.16	1.6	1.66	1.14	11.6	2.66	2.12	21.6	3.65	3.09	31.5	4.65	4.07	41.5
0.68	0.18	1.8	1.68	1.16	11.8	2.68	2.13	21.8	3.67	3.11	31.7	4.67	4.09	41.7
0.70	0.20	2.0	1.70	1.18	12.0	2.70	2.15	22.0	3.69	3.13	31.9	4.69	4.11	41.9
0.72	0.22	2.2	1.72	1.20	12.2	2.72	2.17	22.2	3.71	3.15	32.1	4.71	4.13	42.1
0.74	0.24	2.4	1.74	1.21	12.4	2.73	2.19	22.3	3.73	3.17	32.3	4.73	4.15	42.3
0.76	0.26	2.6	1.76	1.23	12.6	2.75	2.21	22.5	3.75	3.19	32.5			
0.78	0.28	2.8	1.78	1.25	12.8	2.77	2.23	22.7	3.77	3.21	32.7			
0.80	0.30	3.0	1.80	1.27	13.0	2.79	2.25	22.9	3.79	3.23	32.9			
0.82	0.31	3.2	1.82	1.29	13.2	2.81	2.27	23.1	3.81	3.25	33.1			
0.84	0.33	3.4	1.84	1.31	13.4	2.83	2.29	23.3	3.83	3.26	33.3			
0.86	0.35	3.6	1.86	1.33	13.6	2.85	2.31	23.5	3.85	3.28	33.5			
0.88	0.37	3.8	1.88	1.35	13.8	2.87	2.33	23.7	3.89	3.30	33.7			
0.90	0.39	4.0	1.90	1.37	13.9	2.89	2.35	23.9	3.89	3.32	33.9			
0.92	0.41	4.2	1.91	1.39	14.1	2.91	2.36	24.1	3.91	3.34	34.1			
0.94	0.43	4.4	1.93	1.41	14.3	2.93	2.38	24.3	3.93	3.36	34.3			
0.96	0.45	4.6	1.95	1.43	14.5	2.95	2.40	24.5	3.95	3.38	34.5			
0.98	0.47	4.8	1.97	1.44	14.7	2.97	2.42	24.7	3.97	3.40	34.7			

Outdoor Unit

▼ PS sensor characteristics

0 to 2.24 MPa (0.5 to 5V output for 0 to 2.24 MPa)
Voltage readings across pins 2 and 3 of CN500 on indoor unit main P.C. board (with negative-side probe of multimeter placed on pin 3)

VOLT	PS (MPa)	PS (kg/cm^2)	VOLT	PS (MPa)	PS (kg/cm^2)	VOLT	PS (MPa)	PS (kg/cm^2)	VOLT	PS (MPa)	PS (kg/cm^2)	VOLT	PS (MPa)	PS (kg/cm^2)
0.01	0.00	0.0	1.00	0.25	2.6	2.00	0.75	7.7	3.00	1.25	12.7	4.00	1.75	17.8
0.03	0.00	0.0	1.02	0.26	2.7	2.02	0.76	7.8	3.02	1.26	12.8	4.01	1.76	17.9
0.05	0.00	0.0	1.04	0.27	2.8	2.04	0.77	7.9	3.04	1.27	12.9	4.03	1.77	18.0
0.07	0.00	0.0	1.06	0.28	2.9	2.06	0.78	8.0	3.05	1.28	13.0	4.05	1.78	18.1
0.09	0.00	0.0	1.08	0.29	3.0	2.08	0.79	8.1	3.07	1.29	13.1	4.07	1.79	18.2
0.11	0.00	0.0	1.10	0.30	3.1	2.10	0.80	8.2	3.09	1.30	13.2	4.09	1.80	18.3
0.13	0.00	0.0	1.12	0.31	3.2	2.12	0.81	8.3	3.11	1.31	13.3	4.11	1.81	18.4
0.14	0.00	0.0	1.14	0.32	3.3	2.14	0.82	8.4	3.13	1.32	13.4	4.13	1.82	18.5
0.16	0.00	0.0	1.16	0.33	3.4	2.16	0.83	8.5	3.15	1.33	13.5	4.15	1.82	18.6
0.18	0.00	0.0	1.18	0.34	3.5	2.18	0.84	8.6	3.17	1.34	13.6	4.17	1.83	18.7
0.20	0.00	0.0	1.20	0.35	3.6	2.20	0.85	8.7	3.19	1.35	13.7	4.19	1.84	18.8
0.22	0.00	0.0	1.22	0.36	3.7	2.21	0.86	8.8	3.21	1.36	13.8	4.21	1.85	18.9
0.24	0.00	0.0	1.24	0.37	3.8	2.23	0.87	8.9	3.23	1.37	13.9	4.23	1.86	19.0
0.26	0.00	0.0	1.26	0.38	3.9	2.25	0.88	9.0	3.25	1.38	14.0	4.25	1.87	19.1
0.28	0.00	0.0	1.28	0.39	4.0	2.27	0.89	9.1	3.27	1.39	14.1	4.27	1.88	19.2
0.30	0.00	0.0	1.30	0.40	4.1	2.29	0.90	9.2	3.29	1.40	14.2	4.29	1.89	19.3
0.32	0.00	0.0	1.32	0.41	4.2	2.31	0.91	9.3	3.31	1.41	14.3	4.30	1.90	19.4
0.34	0.00	0.0	1.34	0.42	4.3	2.33	0.92	9.4	3.33	1.42	14.4	4.32	1.91	19.5
0.36	0.00	0.0	1.36	0.43	4.4	2.35	0.93	9.5	3.35	1.42	14.5	4.34	1.92	19.6
0.38	0.00	0.0	1.38	0.44	4.5	2.37	0.94	9.6	3.37	1.43	14.6	4.36	1.93	19.7
0.40	0.00	0.0	1.39	0.45	4.6	2.39	0.95	9.7	3.39	1.44	14.7	4.38	1.94	19.8
0.42	0.00	0.0	1.41	0.46	4.7	2.41	0.96	9.8	3.41	1.45	14.8	4.40	1.95	19.9
0.44	0.00	0.0	1.43	0.47	4.8	2.43	0.97	9.9	3.43	1.46	14.9	4.42	1.96	20.0
0.46	0.00	0.0	1.45	0.48	4.9	2.45	0.98	10.0	3.45	1.47	15.0	4.44	1.97	20.1
0.48	0.00	0.0	1.47	0.49	5.0	2.47	0.99	10.1	3.46	1.48	15.1	4.46	1.98	20.2
0.50	0.00	0.0	1.49	0.50	5.1	2.49	1.00	10.2	3.48	1.49	15.2	4.48	1.99	20.3
0.52	0.01	0.1	1.51	0.51	5.2	2.51	1.01	10.3	3.50	1.50	15.3	4.50	2.00	20.4
0.54	0.02	0.2	1.53	0.52	5.3	2.53	1.02	10.4	3.52	1.51	15.4	4.52	2.01	20.5
0.55	0.03	0.3	1.55	0.53	5.4	2.55	1.02	10.5	3.54	1.52	15.5	4.54	2.02	20.6
0.57	0.04	0.4	1.57	0.54	5.5	2.57	1.03	10.6	3.56	1.53	15.6	4.56	2.03	20.7
0.59	0.05	0.5	1.59	0.55	5.6	2.59	1.04	10.7	3.58	1.54	15.7	4.58	2.04	20.8
0.61	0.06	0.6	1.61	0.56	5.7	2.61	1.05	10.8	3.60	1.55	15.8	4.60	2.05	20.9
0.63	0.07	0.7	1.63	0.57	5.8	2.63	1.06	10.9	3.62	1.56	15.9	4.62	2.06	21.0
0.65	0.08	0.8	1.65	0.58	5.9	2.64	1.07	11.0	3.64	1.57	16.0	4.64	2.07	21.1
0.67	0.09	0.9	1.67	0.59	6.0	2.66	1.08	11.1	3.66	1.58	16.1	4.66	2.08	21.2
0.69	0.10	1.0	1.69	0.60	6.1	2.68	1.09	11.2	3.68	1.59	16.2	4.68	2.09	21.3
0.71	0.11	1.1	1.71	0.61	6.2	2.70	1.10	11.2	3.70	1.60	16.3	4.70	2.10	21.4
0.73	0.12	1.2	1.73	0.62	6.3	2.72	1.11	11.3	3.72	1.61	16.4	4.71	2.11	21.5
0.75	0.13	1.3	1.75	0.62	6.4	2.74	1.12	11.4	3.74	1.62	16.5	4.73	2.12	21.6
0.77	0.14	1.4	1.77	0.63	6.5	2.76	1.13	11.5	3.76	1.63	16.6	4.75	2.13	21.7
0.79	0.15	1.5	1.79	0.64	6.6	2.78	1.14	11.6	3.78	1.64	16.7	4.77	2.14	21.8
0.81	0.16	1.6	1.80	0.65	6.7	2.80	1.15	11.7	3.80	1.65	16.8	4.79	2.15	21.9
0.83	0.17	1.7	1.82	0.66	6.8	2.82	1.16	11.8	3.82	1.66	16.9	4.81	2.16	22.0
0.85	0.18	1.8	1.84	0.67	6.9	2.84	1.17	11.9	3.84	1.67	17.0	4.83	2.17	22.1
0.87	0.19	1.9	1.86	0.68	7.0	2.86	1.18	12.0	3.86	1.68	17.1	4.85	2.18	22.2
0.89	0.20	2.0	1.88	0.69	7.1	2.88	1.19	12.1	3.88	1.69	17.2	4.87	2.19	22.3
0.91	0.21	2.1	1.90	0.70	7.2	2.90	1.20	12.2	3.89	1.70	17.3	4.89	2.20	22.4
0.93	0.22	2.2	1.92	0.71	7.3	2.92	1.21	12.3	3.91	1.71	17.4	4.91	2.21	22.5
0.95	0.22	2.3	1.94	0.72	7.4	2.94	1.22	12.4	3.93	1.72	17.5	4.93	2.22	22.6
0.96	0.23	2.4	1.96	0.73	7.5	2.96	1.23	12.5	3.95	1.73	17.6	4.95	2.22	22.7
0.98	0.24	2.5	1.98	0.74	7.6	2.98	1.24	12.6	3.97	1.74	17.7	4.97	2.23	22.8
												4.99	2.24	22.9

8-11. System operation when the Leak Detector detects refrigerant leak.

When a leak detector detects a refrigerant leak, the indoor unit connected to the detected leak detector issues a [J30] notification.
When a refrigerant leak is detected, the alarm LED flashes and the buzzer rings.
The alarm can be stopped by pressing the alarm lamp button for at least 2 seconds, after buzzer sounds 1 minute.

When a leak detector connected to an indoor unit which DN code No.[107] was set to "1: Pump down operation" detects a leak, all shut-off valves will be closed and the system will be locked.
J30 will be displayed on the 7-segment display of the I/F board of the outdoor unit.

When a leak detector connected to an indoor unit which DN code No.[107] was set to "3: Leak Detector Only" detects a leak, the system will be locked.
However, if there is even one indoor unit which has its DN code No.[107] set to "1: Pump down operation", all shut-off valves will be closed and the system will be locked.
J30 will be displayed on the 7-segment display of the I/F board of the outdoor unit.

When a leak detector connected to an indoor unit which DN code No.[107] was set to "2: Individual shut-off" detects a leak, the shut-off valve of the corresponding indoor unit will be closed and only the corresponding indoor unit will be prevent from operating .
J30 will not be displayed on the 7-segment display of the I/F board of the outdoor unit.

Please refer to "8-5. Diagnosis procedure for each check code " for more explanation of the leak detection.

9. BACKUP OPERATION (EMERGENCY OPERATION)

This product offers backup modes of operation to tide over certain emergency situations. If a trouble occurs in one of the compressors, it is possible to operate the system on an emergency basis by operating only the remaining compressor, (compressor backup operation).

9-1. Compressor Backup Operation Setting

<Outline>

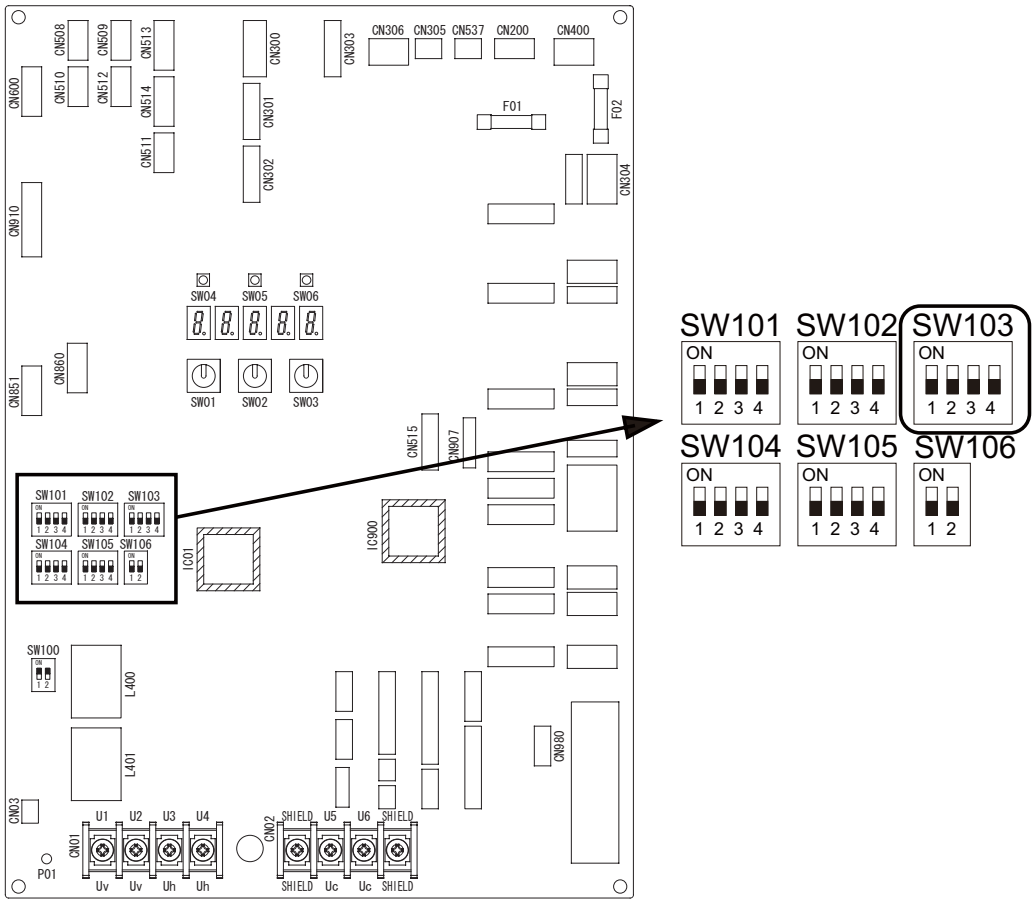
If a failure occurs to one of the compressors installed in outdoor unit, follow the procedure described below to back up the failure compressor by using the remaining, normal compressor.

Note: The backup operation of compressor cannot be done for MMY-SUG0801*, MMY-SUG1001*, MMY-SUG1201*, MMY-SUG1401* because only one compressor is installed in these models.

<Work Procedure>

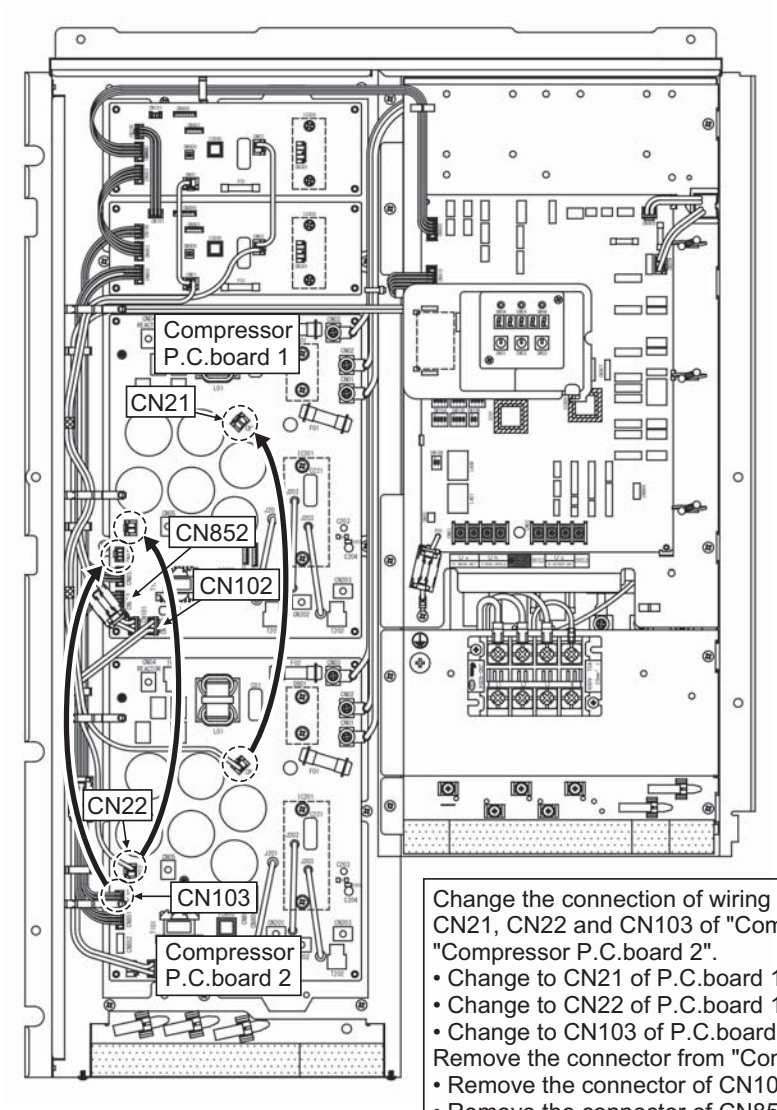
(1) Turn off the power supply to all the outdoor units connected to the system.

(2) Set the DIP switches of SW103, provided on the interface P.C. board of the outdoor unit with the failure compressor, as shown in the table below.



	SW103			
	Bit 1	**Bit 2**	**Bit 3**	**Bit 4**
Factory default setting	OFF	OFF	OFF	OFF
When compressor No.1 (front left) is failure	ON	OFF	OFF	OFF
When compressor No.2 (front right) is failure	OFF	ON	OFF	OFF

(3) Change the connection of wiring as shown in the below.
Outdoor Unit (16,18,20,22,24HP)
Model: MMY-SUG1601*, 1801*, 2001*, 2201*, 2401*
1. When compressor No.1 is failure : No change the connection of wiring
2. When compressor No.2 is failure : Connection of wiring is changed as shown below.



Change the connection of wiring which is connected to the CN21, CN22 and CN103 of "Compressor P.C.board 1" and "Compressor P.C.board 2".
• Change to CN21 of P.C.board 1 from CN21 of P.C.board 2.
• Change to CN22 of P.C.board 1 from CN22 of P.C.board 2.
• Change to CN103 of P.C.board 1 from CN103 of P.C.board 2.
Remove the connector from "Compressor P.C.board 1"
• Remove the connector of CN102
• Remove the connector of CN852

(4) Turn on the power supply to all the units connected to the system.
This is the end of compressor backup operation setting.

10. Outdoor Unit repairing method

When outdoor unit is in need of repair, refrigerant should be recovered from the system and after repairing, refrigerant should be recharged to run system This section indicate the repairing procedure from recovering refrigerant to charging refrigerant. Please proceed as follows;

Start → 10-1. Recovering refrigerant → 10-2. Repairing → 10-3. Airtightness test → 10-4.Vacuum drying → 10-5. Charging refrigerant

⚠ WARNING

- Switch off the system just before starting repairing, otherwise valves of the FS units and SV units will close and there are risks of refrigerant to remain in the system.
- Please switch on the system after finishing repairing, otherwise valves of the FS units and SV units will close and there are risks of air remain in the system.

10-1. Refrigerant recovery

When recovering refrigerant, take note of the following matters:

Note 1: The recovering refrigerant rate changes with outside temperature and other factors.
Recover refrigerant using a refrigerant recovery device, etc., and be
sure to measure the amount of recovered refrigerant.

Note 2: If recovering operation has been finished, the system cannot operate until the outdoor unit is repaired.

10-2. Repairing

- Before start repairing, switch off all systems and assure safety.
- Carry out the repair which needed.
- After repairing, switch on all systems to prepare for the next airtightness test.

10-3. Airtightness test

Before start an airtight test, open all solenoid valves. Please refer to the following how to open solenoid valves.

[Method of operating solenoid valve (forced ON)

(1) Set the rotary switch [SW02] to 2, and five seconds later SV41 will come ON. [H.r 41] will be displayed in the 7-segment display in the solenoid valve display screen.

(2) Any desired solenoid valve can be forced ON by changing the setting No. of the rotary switch [SW02]. The following table shows the forced-ON/normal control patterns for each solenoid valve.

Rotary switch			7-segmant display (solenoid value display)	Opration patterns of solenoid valve / heater (✓ : Forced ON, – : normal control)						
SW01	SW02	SW03		SV41	SV42	SV3D	SV3F	SV2	SV7	Compressor 1,2 case heater
2	1	# Used in operations	[H.r –––]	–	–	–	–	–	–	✓
	2		[H.r 4 1]	✓	–	–	–	–	–	✓
	3		[H.r 4 2]	–	✓	–	–	–	–	✓
	4		[H.r 3 D]	–	–	✓	–	–	–	✓
	5		[H.r 3 F]	–	–	–	✓	–	–	✓
	6		[H.r 3 –]	–	–	✓	✓	–	–	✓
	8		[H.r 2 –]	–	–	–	–	✓	–	✓
	9		[H.r 7 –]	–	–	–	–	–	✓	✓
	7, 10~15		[H.r –––]	–	–	–	–	–	–	✓
	16		[H.r A L L]	✓	✓	✓	✓	✓	✓	✓

* The 7-segment display will show [H.r—] for outdoor unit models that do not have solenoid valves.

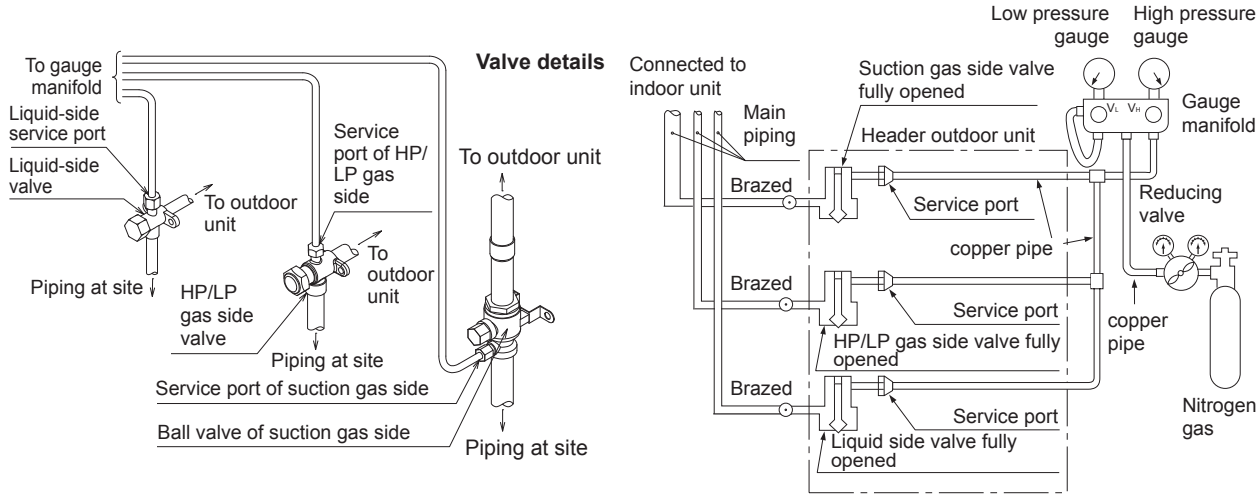
For an airtight test, connect a nitrogen gas canister as shown in the figure on this page and apply pressure.

- Be sure to apply pressure from the service ports of the packed valves (or ball valve) at the liquid side and (HP/LP, Suction) gas side.
- An airtight test can only be performed at the service ports at the liquid side and (HP/LP, Suction) gas side.
- For each refrigerant line, apply pressure gradually in steps at the liquid side and (HP/LP, Suction) gas side.
  Be sure to apply pressure at the (HP/LP, Suction) gas side and liquid side.

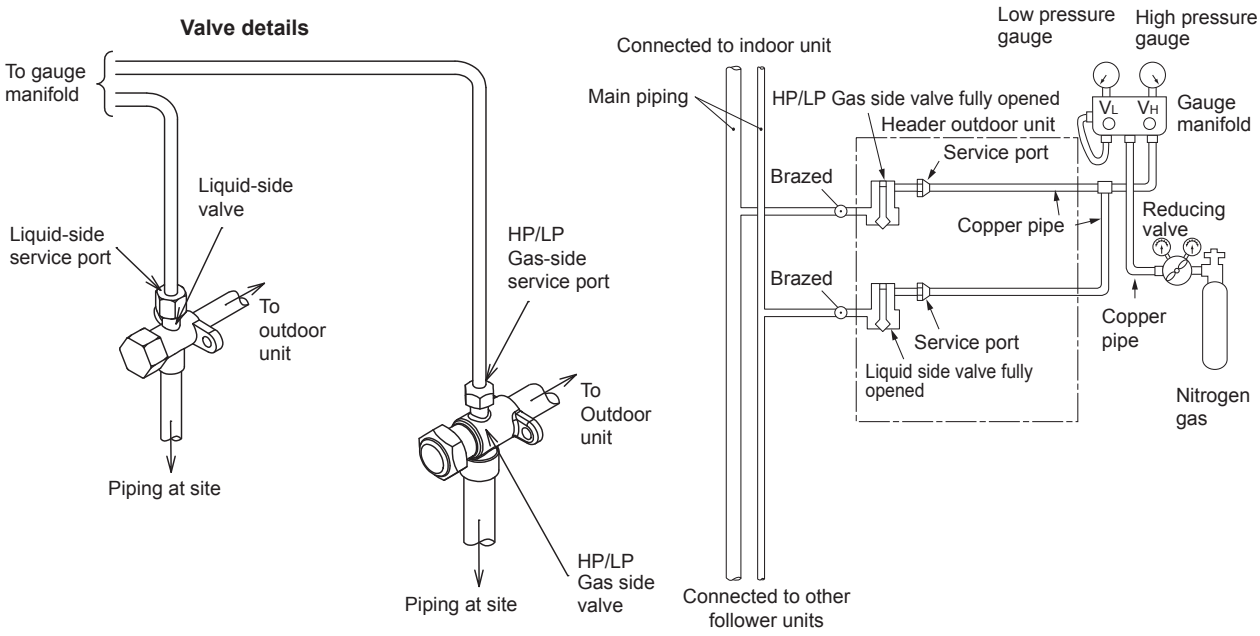
⚠ WARNING

Never use oxygen, flammable gases, or noxious gases in an airtight test.

For Heat Recovery System Installation



For Heat Pump System Installation



Able to detect a serious leakage

1. Apply pressure 0.3 MPa (3.0 kg/cm^{2}G) for 5 minutes or more.
2. Apply pressure 1.5 MPa (15 kg/cm^{2}G) for 5 minutes or more.

Available to detect slow leakage

3. Apply pressure 4.15 MPa (42.3 kg/cm^{2}G) for approx. 24 hours.

- If there is no pressure decrease after 24 hours, the test is passed.

NOTE

However, if the environmental temperature changes from the moment of applying pressure to 24 hours after that, the pressure will change by about 0.01 MPa (0.1 kg/cm^{2}G) per 1°C. Consider the pressure change when checking the test result.

REQUIREMENT

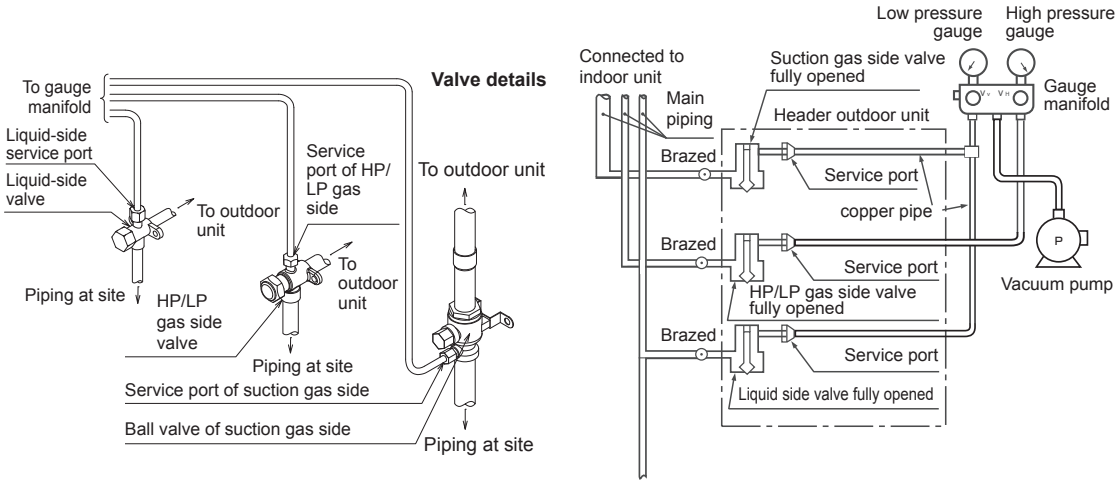
When pressure decrease is detected in steps 1-3, check the leakage at the connecting points. Check the leakage using a foaming agent or other measures and seal the leak with re-brazing, flare retightening or other methods. After sealing, execute an airtight test again.

10-4. Vacuum drying

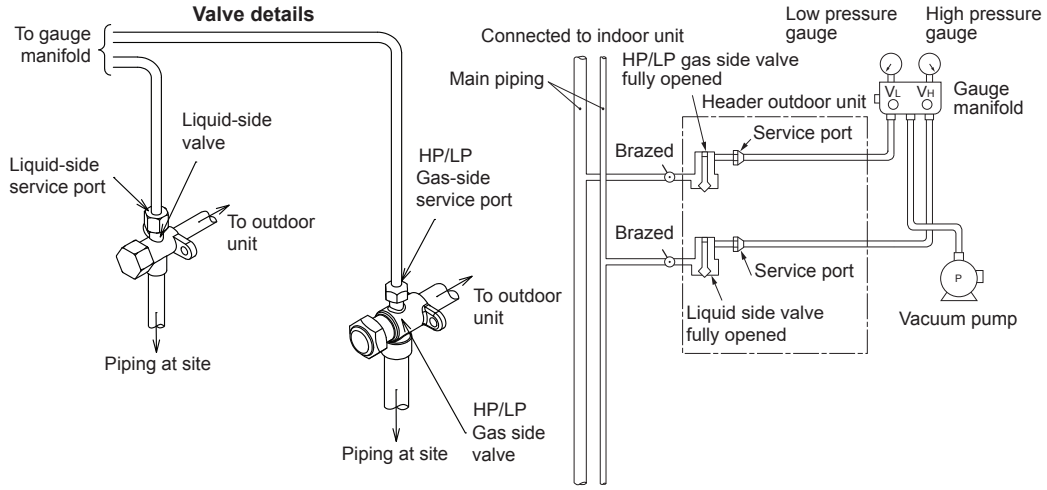
- Be sure to perform vacuuming from both liquid and (HP/LP, Suction) gas side.
- Be sure to use a vacuum pump equipped with the counter-flow prevention function so that oil in the pump will not flow back into piping for air conditioners. (If oil in the vacuum pump enters in the air conditioner with R32 refrigerant, a problem may be caused in the refrigerating cycle.)

After finishing the airtight test and discharging nitrogen gas, connect the gauge manifold to the service ports of the liquid side and (HP/LP, Suction) gas side and connect a vacuum pump as shown in the figure below. Be sure to perform vacuuming for the liquid and (HP/LP, Suction) gas pipe sides.

For Heat Recovery System Installation



For Heat Pump System Installation



- Use a vacuum pump with a high vacuuming degree [-100.7 kPa (5 Torr, -755 mmHg)] and large exhaust gas amount (40 L/minute or larger).
- If the pressure does not reach -100.7 kPa or less, continue vacuuming for 1 hour or more. If the pressure does not reach -100.7 kPa after 3 hours of vacuuming, stop vacuuming and check for air leakage.
- If the pressure reaches -100.7 kPa or less after vacuuming for 2 hours or more, close the valves VL and VH on the gauge manifold fully and stop the vacuum pump. Leave it as it is for 1 hour to confirm that the vacuuming degree does not change.
  If the degree of vacuum loss is large, moisture may remain in the pipes. In that case, inject dry nitrogen gas and apply pressure to 0.05 MPa and perform vacuuming again.
- After finishing the above procedure of vacuuming, exchange the vacuum pump with a refrigerant canister and advance to the additional charging of refrigerant.

10-5. Charging refrigerant

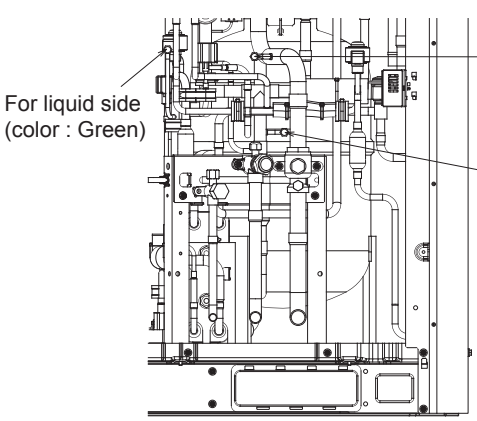
Note :

- After finishing vacuuming, exchange the vacuum pump with a refrigerant canister and start additional charging of refrigerant.
- Amount of charging refrigerant should not just add Additional amount written in P139-141 "7-2. Check items before test Operation (before powering-on) _ Checklist2", but also add amount charged in factory.
  (990W : 6kg, 1290W: 9kg)
  (All refrigerant will be recovered when repairing, so it needs to take into amount of refrigerant charged in factory.
- Be sure to charge the liquid refrigerant into the service port at the liquid side.
- If the specified amount of refrigerant cannot be charged, operate the air conditioner in COOL mode, and then charge refrigerant into service port at the gas side. In this time, choke the refrigerant slightly by operating the valve of the canister to charge liquid refrigerant.
- The liquid refrigerant may be charged suddenly, therefore be sure to charge refrigerant gradually.

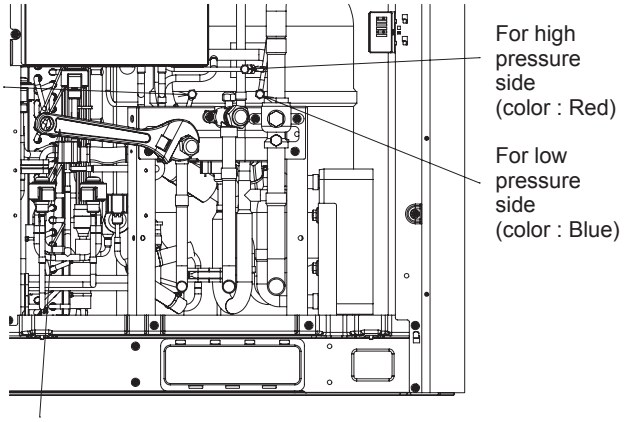
■ Position of the Check-joint

The figure below shows the position of the check-joint.

MMY-SUG0801,1001,1201,1401MT8



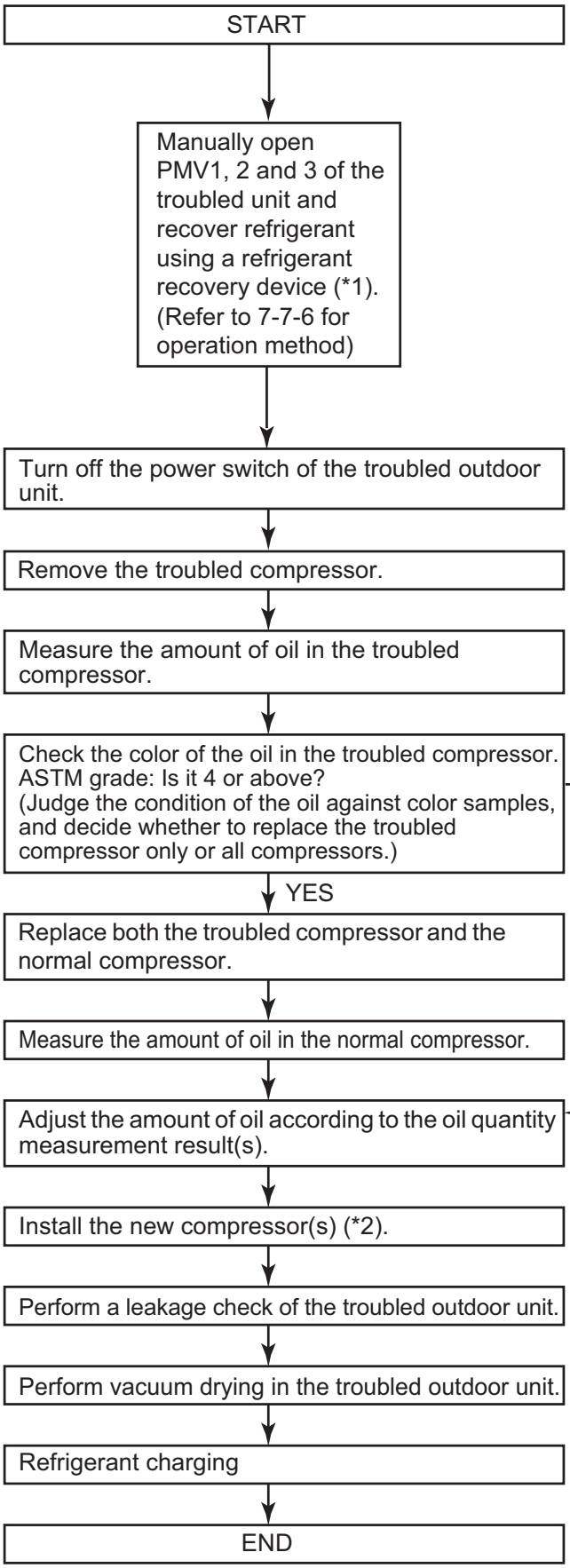
MMY-SUG1601,1801,2001,2201,2401MT8



When opening and closing the cap with a wrench, be careful not to turn the wrench vigorously as it may come into contact with surrounding parts.

11. REPLACING COMPRESSORS

11-1. Compressor Replacement Procedure (Outline)



⚠ WARNING

In situations such as indoor unit relocation and repairs, it is not possible to recover all the refrigerant held by the system in the outdoor units.
It could cause a serious accident, such as blow out or injury.
Be sure to perform refrigerant recovery using a refrigerant recovery device.

⚠ WARNING

When detaching a pipe by heating with a burner at brazed joint, take care as any oil left in the piping may burn in a momentary flash of fire when the brazed filler metal melts.

*1 The full-opening of PMV 1, 2, 3 via rotary switch is automatically undone after 2 minutes, causing the valves to fully close.
To maintain fully open state, turn off the power switch of the outdoor unit within 2 minutes

*2 The SHRM-A and SMMS-u and SMMS-e use different types of compressors. Be sure to check the service part code.

This flowchart only shows the standard compressor replacement procedure. Since the situation can differ site by site, perform the task in accordance with the following judgment criteria:

1. The compressors that are used as service parts are filled with oil as listed below (per 1 compressor):

8, 10, 12, 14, 16, 18, 20, 22, 24HP	1900 cc

2. The oil volume that was filled in the outdoor unit is listed as below:

8, 10, 12, 14HP	3400 cc
16, 18, 20, 22, 24HP	5800 cc

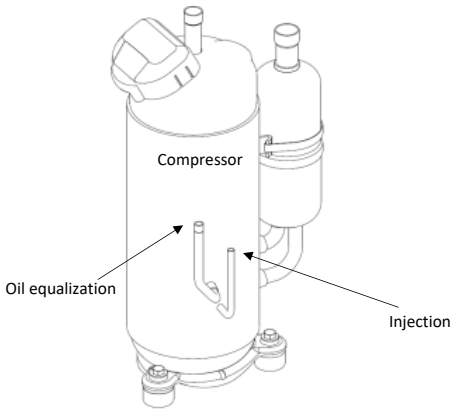
3. The removed compressors normally filled with oil as listed below (per 1 compressor):

8, 10, 12, 14, 16, 18, 20, 22, 24HP	800~1400 cc

Oil separator's oil volume is normally around 0~1000 cc.

11-2. Replacement of Compressors

<Checking color of oil in troubled compressor>



- Lay the troubled compressor down, draw a small amount of oil via the oil equalization pipe, and check its color against color samples.
- Determine the number of compressors to be replaced according to the color checking result.
  ASTM grade: Below 4 → Replace the troubled compressor only.
  ASTM grade: 4 or above → Replace both the troubled compressor and the normal compressor(s).

Notes : Do not remove oil from the injection pipe.

⚠ WARNING

When detaching a pipe by heating with a burner at brazed joint, take care as any oil left in the piping may burn in a momentary flash of fire when the brazing filler metal melts.

Model: MMY-SUG0801*, 1001*, 1201*, 1401*

For 8, 10, 12, 14HP

[When replacing troubled compressor only]

<Measuring amount of oil in troubled compressor>

Put the troubled compressor above the scale to measure the amount of oil.

Amount of oil in troubled compressor: A [cc] = (Weight of compressor as it was dismantled (kg) - 26.0kg) x 1042

(Specific volume of oil: 1042 [cc/kg])

* The weight of the compressor without oil inside is 26.0 kg.

<Adjusting amount of oil in new compressor> (1900 cc at shipment)

- Perform the adjustment on the basis of how much oil the troubled compressor contained, A [cc], by following the steps below.

1 Amount of oil in troubled compressor A [cc]: 0 ≤ A < 1100

(1) Adjust the amount of oil in the new compressor to 1100 cc.
(Lay the new compressor down and draw 800 [cc] of oil via the oil-equalization pipe.)

Notes:

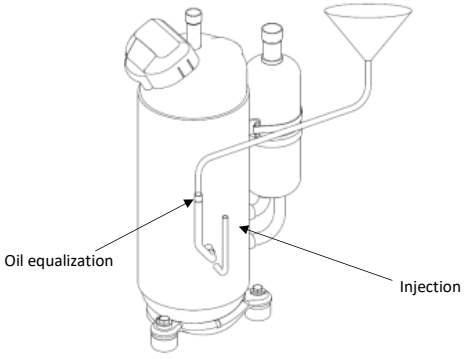
- Do not draw more than 800 [cc] of oil as it may cause damage to the compressor.
- If the troubled compressor contained 500cc or less, there may have been a problem with the oil equalization circuit, etc. Perform checks in accordance with “11-3. Check Procedure to Search Cause of Compressor Oil Shortage”.
- Do not remove oil from the injection pipe.

2 Amount of oil in troubled compressor A [cc]: 1100 ≤ A < 1900

(1) Adjust the amount of oil in the new compressor to A cc.
(Lay the new compressor down and draw (1900 - A) [cc] of oil via the oil equalization pipe.)

3 Amount of oil in troubled compressor A [cc]: 1900 ≤ A

(1) Adjust the amount of oil in the new compressor to A cc.
(Insert a hose into the discharge pipe or oil equalization pipe of the new compressor and inject (A-1900) [cc] of oil using a funnel, etc.)



Notes :

- Do not add oil from the injection pipe.

Model: MMY-SUG1601*, 1801*
For 16, 18HP
[When replacing troubled compressor only]
<Measuring amount of oil in troubled compressor>

- As was the case with the troubled compressor, measure the amount of oil contained by placing the compressor on a scale.
  Amount of oil in troubled compressor: B [cc] = (Weight of compressor as it was dismantled (kg) - 22.1kg) x 1042 (Specific volume of oil: 1042 [cc/kg])
- The weight of the compressor without oil inside is 22.1 kg.

<Adjusting amount of oil in new compressors>

- Perform the adjustment on the basis of how much oil the failure compressor contained, A [cc], and how much oil the normal compressor contained, B[cc], by following the steps below.

1 Combined amount of oil in troubled compressor A+B [cc]: 0 ≤ A +B < 2200

(1) Adjust the amount of oil in the new compressor to 1100cc each (total 2200 cc).
- Lay the new compressor down and draw 800 [cc] of oil from each of them via their oil equalization pipes.

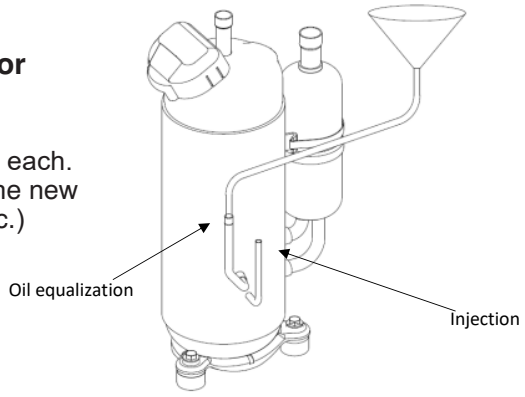
Notes:
- Do not draw more than 800 [cc] of oil from a compressor as it may cause damage.
- If the troubled compressor contained 500cc or less, there may have been a problem with the oil equalization circuit, etc. Perform checks in accordance with “11-3. Check Procedure to Search Cause of Compressor Oil Shortage”.
- Do nut remove oil from the injection pipe.

2 Combined amount of oil in troubled compressor A+B [cc]: 2200 ≤ A+B < 3800

(1) Adjust the amount of oil in the two new compressors to (A+B)/2 cc each.
- Lay the compressor down and draw [3800-(A+B)]/2 [cc] of oil from each of them via their oil equalization pipes.

3 Combined amount of oil in troubled and normal compressor A+B [cc]: 3800 ≤ A+B

(1) Adjust the amount of oil in the two new compressor to (A+B)/2 cc each. (Insert a hose into the discharge pipe or oil equalization pipe of the new compressor and inject (A+B)/2-1900) [cc] of oil using a funnel, etc.)



Notes:
- Do not add oil from the injection pipe.

Model: MMY-SUG2001*, 2201*, 2401*
For 20, 22, 24HP
[When replacing normal as well as troubled compressor]- applicable to
<Remove the normal compressor>

• Remove the normal compressor in the same way as the troubled compressor.

Note:

• Be sure to insulate the removed compressor leads using insulation tape, etc.

⚠ WARNING

When detaching a pipe by heating with a burner at brazed joint, take care as any oil left in the piping may burn in a momentary flash of fire when the brazing filler metal melts.

<Measuring amount of oil in troubled compressor>

• As was the case with the troubled compressor, measure the amount of oil contained by placing the compressor on a scale.
Amount of oil in troubled compressor: B [cc] = (Weight of compressor as it was dismantled (kg) - 26.0kg) x 1042 (Specific volume of oil: 1042 [cc/kg])

• The weight of the compressor without oil inside is 26.0 kg.

<Adjusting amount of oil in new compressors>

• Perform the adjustment on the basis of how much oil the failure compressor contained, A [cc], and how much oil the normal compressor contained, B[cc], by following the steps below.

1 Combined amount of oil in troubled compressor A+B [cc]: 0 ≤ A +B < 1100

(1) Adjust the amount of oil in the new compressor to 1100cc each (total 2200 cc).
  • Lay the new compressor down and draw 800 [cc] of oil from each of them via their oil equalization pipes.

Notes:

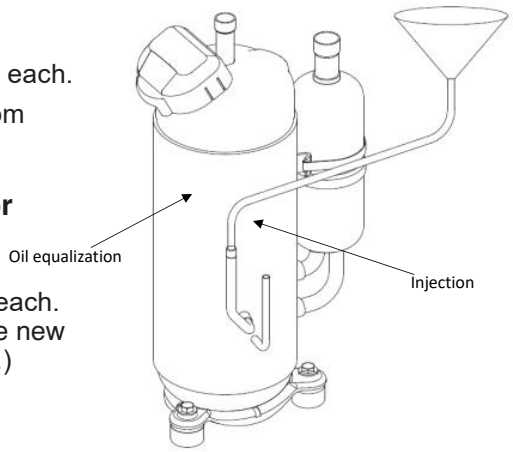
• Do not draw more than 800 [cc] of oil from a compressor as it may cause damage.
• If the troubled compressor contained 500cc or less, there may have been a problem with the oil equalization circuit, etc. Perform checks in accordance with “11-3. Check Procedure to Search Cause of Compressor Oil Shortage”.
• Do nut remove oil from the injection pipe.

2 Combined amount of oil in troubled compressor A+B [cc]: 2200 ≤ A+B < 3800

(1) Adjust the amount of oil in the two new compressors to (A+B)/2 cc each.
  • Lay the compressor down and draw [3800-(A+B)]/2 [cc] of oil from each of them via their oil equalization pipes.

3 Combined amount of oil in troubled and normal compressor A+B [cc]: 3800 ≤ A+B

(1) Adjust the amount of oil in the two new compressor to (A+B)/2 cc each. (Insert a hose into the discharge pipe or oil equalization pipe of the new compressor and inject (A+B)/2-1900) [cc] of oil using a funnel, etc.)



Notes:

• Do not add oil from the injection pipe.

<Installing compressor>

- Install a compressor by following the dismantling procedure in reverse.

Notes:

- The tightening torque of the screws, used to fix the compressor's lead wires, is 2.5 N•m.
- The tightening torque of the hexagonal bolts, used to mount the compressor, is 19.6 N•m.
- If oil has been drawn from the accumulator, repair the cut pipe through pinching and brazing.

<Vacuum-pumping>

(Single outdoor unit system)

- Before performing vacuum-pumping, fully open PMV1, 2 and 3. If they are closed, the heat exchangers of the outdoor unit cannot be vacuum-pumped.
- Connect a vacuum pump consecutively to the check joints placed in the liquid and discharge pipes and on the high-pressure side of the suction pipe, and turn it on.
- Operate the vacuum drying until the vacuum gauge indicates 1 mmHg.

<Method to fully open PMV manually>

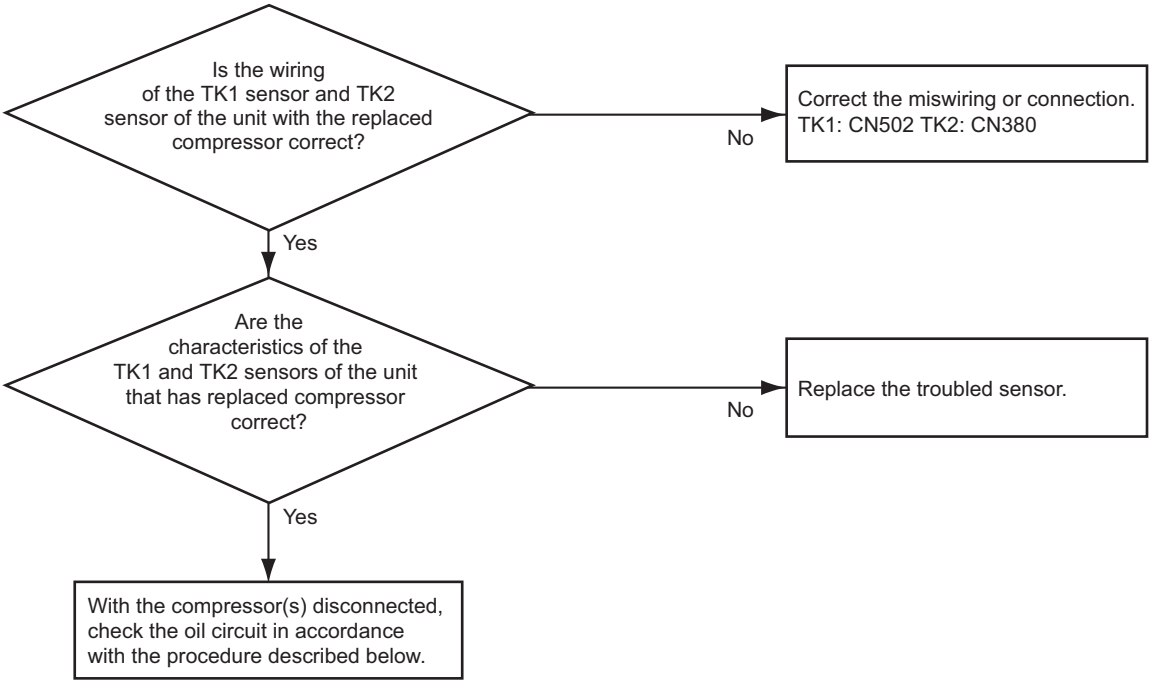
(1) Turn on the power switch of the outdoor unit.
(2) Fully open the PMV1.
(3) Fully open the PMV2.
(4) Fully open the PMV3
(5) Turn off the power switch of the outdoor unit

* Please refer to chapter 7-7-6 to fully open the PMV1, 2, and 3.
* Step (4) is not needed for Model: MMY-SUG0801*, 1001*, 1201* and 1401*

<Refrigerant charging>

- Inject the same amount of refrigerant as the recovered residual refrigerant via the charging port of the liquid-side service valve.

11-3. Check Procedure to Search Cause of Compressor Oil Shortage

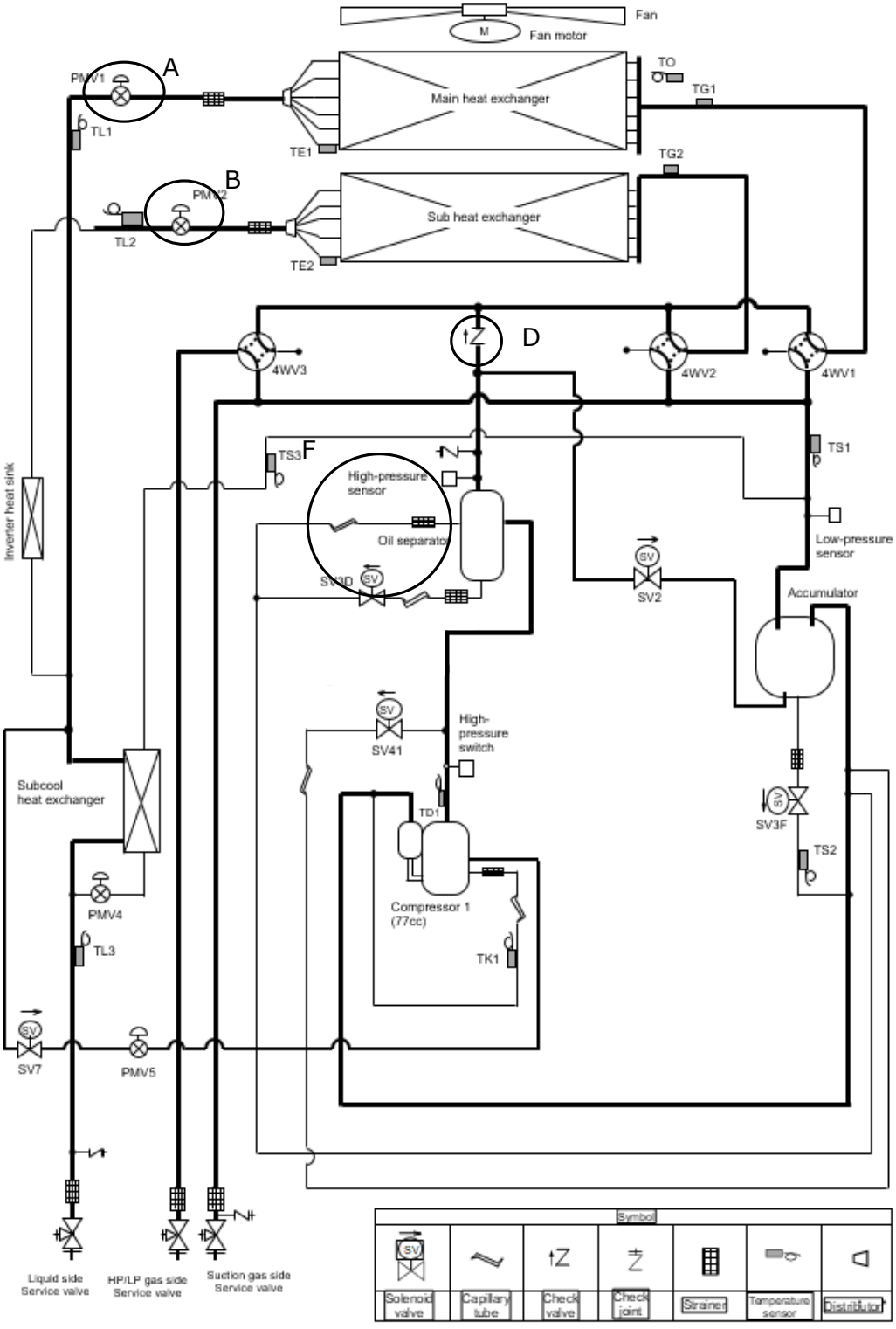


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<MMY-SUG0801*, 1001*, 1201* and 1401*>

Check items and procedures to follow when checking oil circuit with compressor(s) disconnected

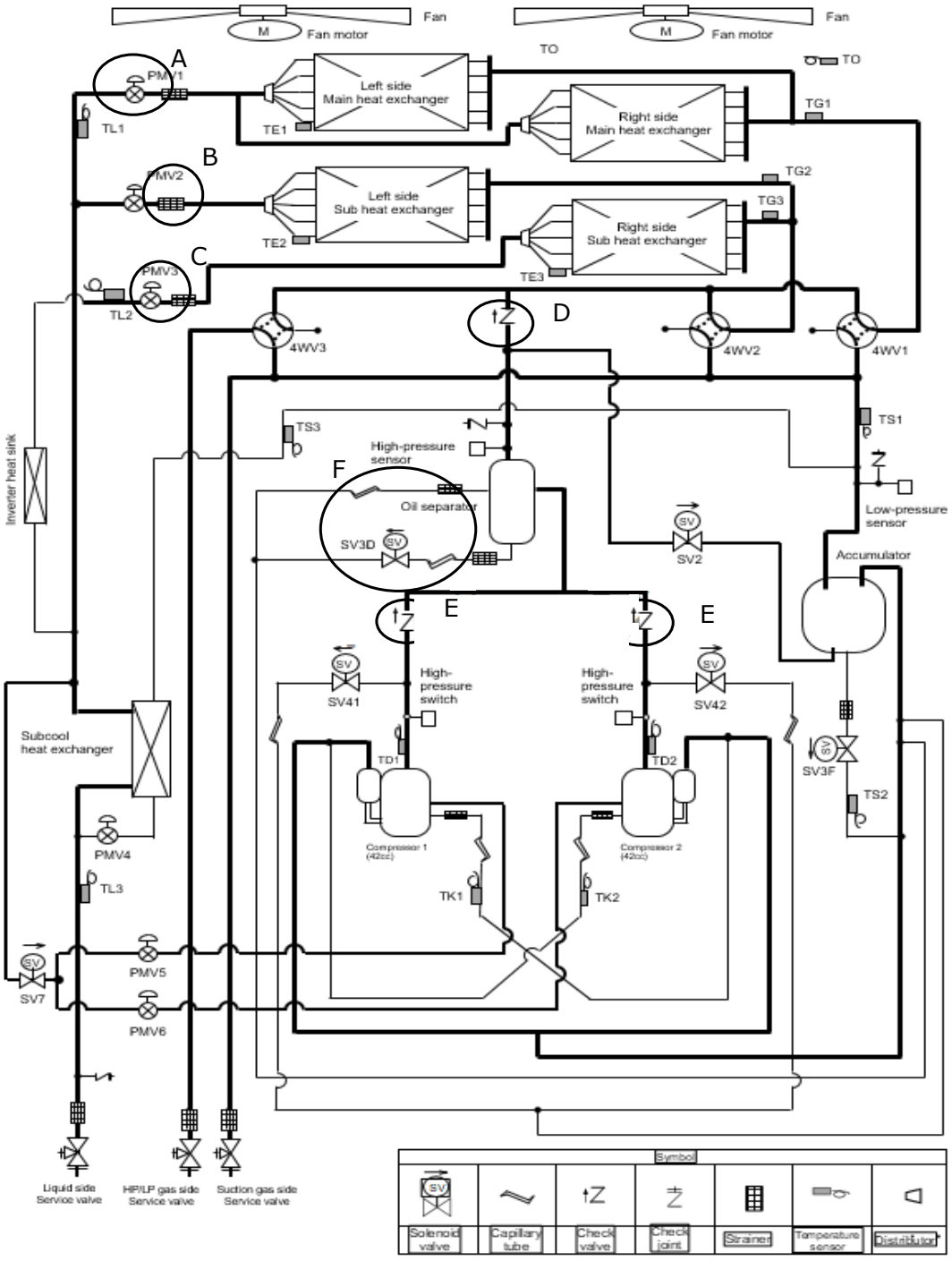
Check item	Location	Procedure
Leakage of outdoor PMV Leakage of check valve in discharge pipe convergent section	A, B, D	1) With PMV 1, 2, 4, 5 and 6 fully closed, apply pressure to the check joint of liquid pipe with nitrogen, and check the pressure at the check joint of discharge pipe. If the pressure at the check joint of discharge pipe increases, there is a leak from PMV1 (A) or PMV2 (B) and check valve of discharge pipe (D). Replace the troubled parts. 2) If the pressure does not increase, fully open outdoor PMV 1, 2 and check the pressure at the check joint of discharge pipe again. If the pressure increases, there is a leak from the check valve of discharge pipe (D). Replace the part.
Clogging of SV3D valve Clogging of oil-return capillary Clogging of oil-return distributor	F	3) With pressure applied to the check joint of discharge pipe with nitrogen, manually open the SV3D valve. If gas does not escape from the suction pipe section of the disconnected compressor, the SV3D valve, oil-return capillary or oil-return distributor is clogged. Replace the part.



<MMY-SUG1601*, 1801*>

Check items and procedures to follow when checking oil circuit with compressor(s) disconnected

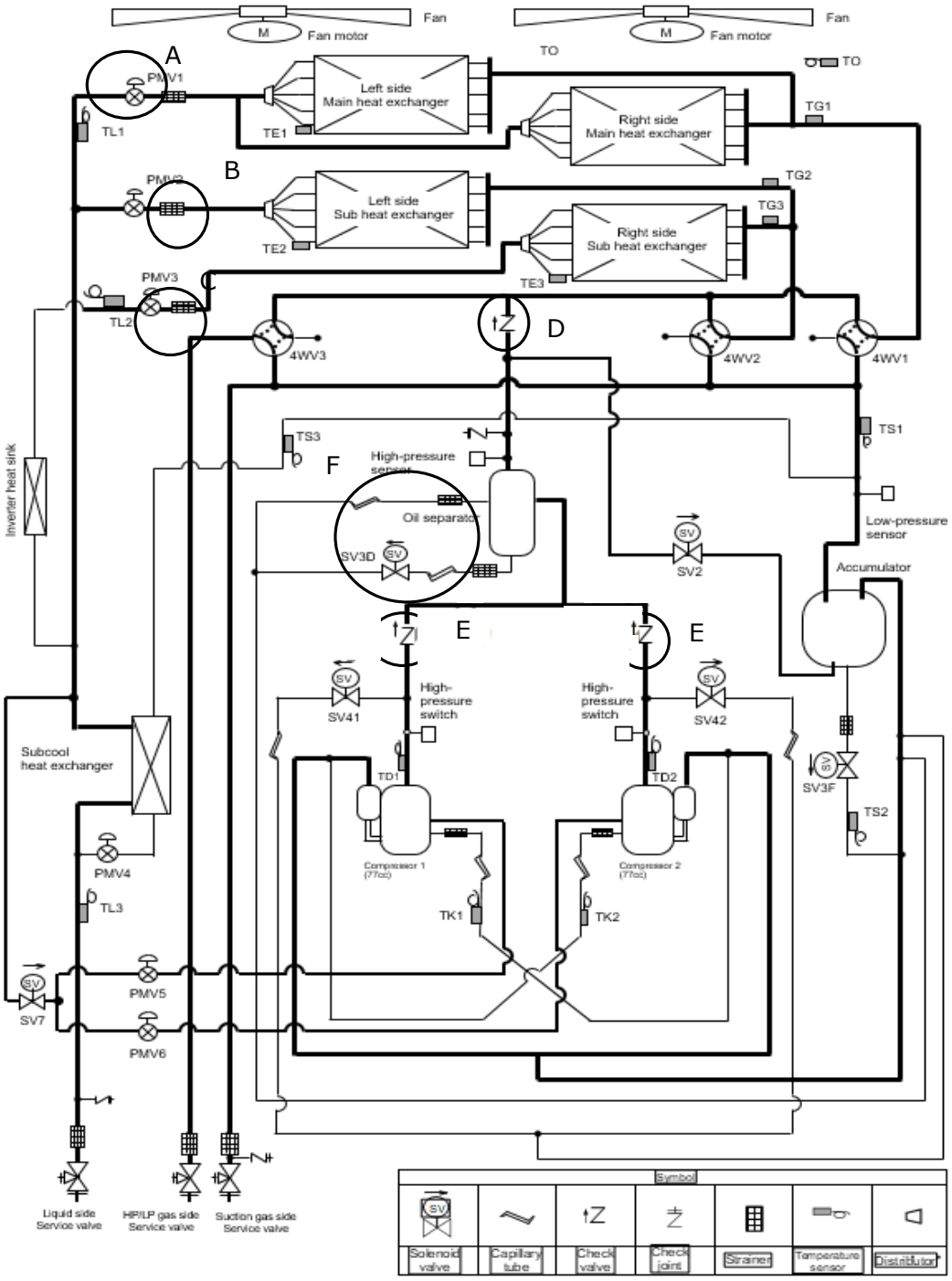
Check item	Location	Procedure
Leakage of outdoor PMV Leakage of check valve in discharge pipe convergent section	A,B C.D	1) With PMV 1, 2, 4, 5 and 6 fully closed, apply pressure to the check joint of liquid pipe with nitrogen, and check the pressure at the check joint of discharge pipe. If the pressure at the check joint of discharge pipe increases, there is a leak from PMV1 (A), 2 (B) or 3 (C) and check valve of discharge pipe (D). Replace the troubled parts. 2) If the pressure does not increase, fully open outdoor PMV1 and 2 and check the pressure at the check joint of discharge pipe again. If the pressure increases, there is a leak from the check valve of discharge pipe (D). Replace the part.
Clogging of SV3D valve Clogging of oil-return capillary Clogging of oil-return distributor	F	3) With pressure applied to the check joint of discharge pipe with nitrogen, manually open the SV3D valve. If gas does not escape from the suction pipe section of the disconnected compressor, the SV3D valve, oil-return capillary or oil-return distributor is clogged. Replace the part.



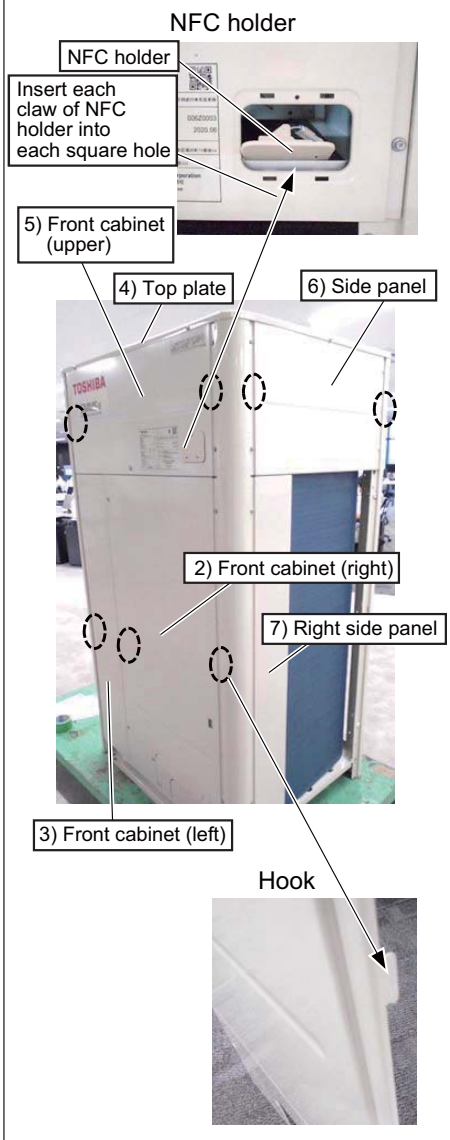
<MMY-SUG2001*, 2201*, 2401*>

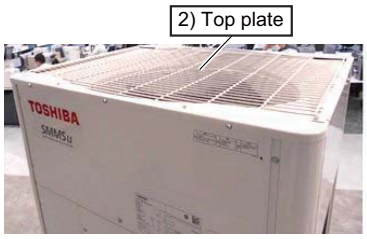
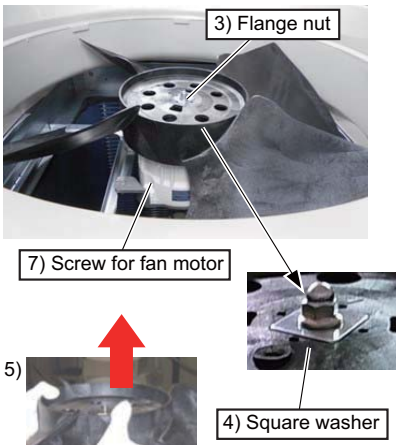
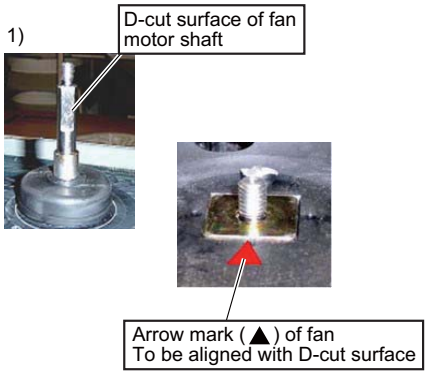
Check items and procedures to follow when checking oil circuit with compressor(s) disconnected

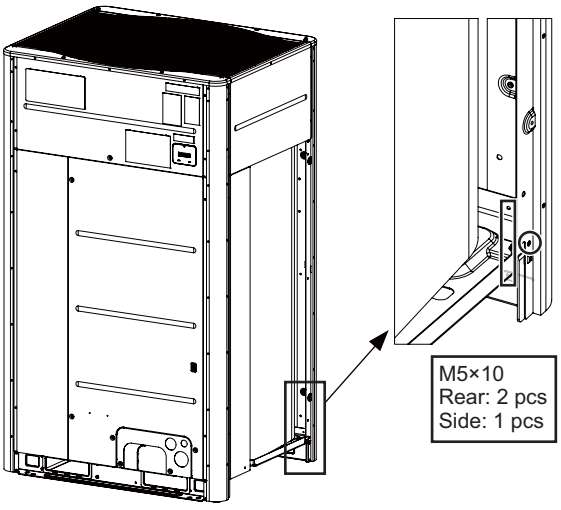
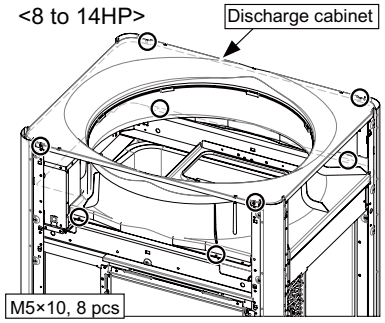
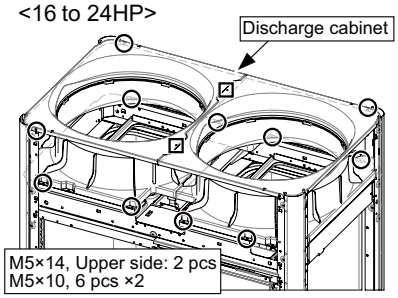
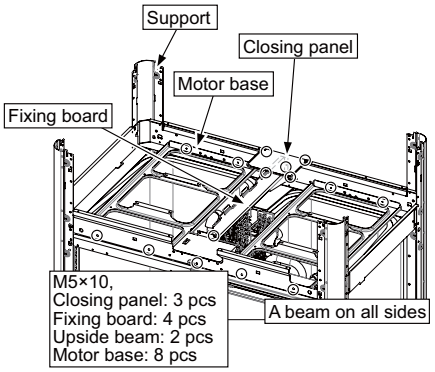
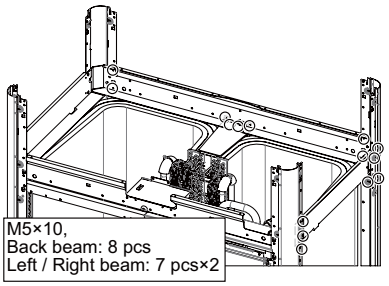
Check item	Location	Procedure
Leakage of outdoor PMV Leakage of check valve in discharge pipe convergent section	A,B C,D	1) With PMV 1, 2, 4, 5 and 6 fully closed, apply pressure to the check joint of liquid pipe with nitrogen, and check the pressure at the check joint of discharge pipe. If the pressure at the check joint of discharge pipe increases, there is a leak from PMV1 (A), 2 (B) or 3 (C) and check valve of discharge pipe (D). Replace the troubled parts. 2) If the pressure does not increase, fully open outdoor PMV1 and 3 and check the pressure at the check joint of discharge pipe again. If the pressure increases, there is a leak from the check valve of discharge pipe (D). Replace the part.
Leakage of check valve in discharge pipe	E	3) With pressure applied to the check joint of discharge pipe with nitrogen, if gas escapes from the discharge pipe section of the disconnected compressor, there is a leak from the check valve of discharge pipe (E). Replace the part.
Clogging of SV3D valve Clogging of oil-return capillary Clogging of oil-return distributor	F	4) With pressure applied to the check joint of discharge pipe with nitrogen, manually open the SV3D valve. If gas does not escape from the suction pipe section of the disconnected compressor, the SV3D valve, oil-return capillary or oil-return distributor is clogged. Replace the part.



12. OUTDOOR UNIT PARTS REPLACEMENT METHODS

No.	Part	Work procedure	Remarks
1	Cabinet	**⚠WARNING** Wear a pair of gloves. Otherwise, you will risk an injury involving a replacement part or some other object. **1. Detachment** 1) Stop the air conditioner operation, and turn off the circuit breaker. 2) Remove the front cabinet (right). (M5 × 10 6 pcs) 3) Remove the front cabinet (left). (M5 × 10 4 pcs) 4) Remove the top plate. (M5 × 10 8 pcs) Front: 3 pcs, Back:3 pcs, Left and Right: 1 pc each 5) Remove the front cabinet (upper) (M5 × 10 5 pcs) * Remove the NFC holder first (M4 × 10 1 pc) • Remove the back side cabinet (upper). (M5 × 10 5 pcs) 6) Remove the side panel (right and left). Each (M5 × 10 4 pcs) 7) Remove the right side panel. (Only 8~14HP cabinet)(M5 × 10 5 pcs) * Each cabinet has the hooks. Lift the cabinet to remove the hooks.	NFC holder 
		2. Attachment Carry out installation by following reverse procedure in the detachment 1) to 7). Hang the hooks into the slit on the metal frame to securely attach each cabinet.	

No.	Part	Work procedure	Remarks
2	Propeller fan and Fan motor	**⚠ WARNING** Wear a pair of gloves. Otherwise, you will risk an injury involving a replacement part or some other object. **1. Detachment** 1) Stop the air conditioner operation, and turn off the circuit breaker. 2) Remove the screws for the top plate. (M5 × 10, 8 pcs: Front, 3 pcs. Back, 3 pcs. Left and Right, 1 pcs each.) 3) Remove the flange nut securing the fan motor and propeller fan. (To loosen the nut, turn it clockwise.) 4) Remove the square washer. 5) Remove the propeller fan. **⚠ CAUTION** Lift it straight up. Do not forcibly pull it, or it may get stuck. 6) Disconnect the connectors for the fan motor leads from the Fan IPDU, and remove the fan motor leads. (Remove the wire clamp and binding band.) 7) Remove the fan motor. (M6 × 20, 4 pcs)	 
		2. CAUTION for replacement or attachment 1) Insert the propeller fan while aligning the D-cut surface of the fan motor shaft with the arrow mark (▲) on the fan. (If the propeller fan is tightly mounted on the shaft without securing alignment between the D-cut surface and the arrow mark (▲), it may cause the fan to melt and fall off due to friction heat.) 2) Be sure to put the square washer in place. (Otherwise, unusual noises and vibrations may result.) 3) Tighten the flange nut at a torque of 14.7 N•m. (To tighten the flange nut, turn it counterclockwise.) [When attaching two fan motors for 16~24 HP] Be sure to attach them to the original positions. Fan motor 1: Attach it to the left side. Connect the fan motor connector to the upper fan P.C. board. Fan motor 2: Attach it to the right side. Connect the fan motor connector to the lower fan P.C. board.	

No.	Part	Work procedure	Remarks
3	Heat exchanger	**⚠ WARNING** Wear a pair of gloves. Otherwise, you will risk an injury involving a replacement part or some other object. **1. Detachment** 1) Remove No. 1. Cabinet, No.2. propeller fan/fan motor, and No. 5. Reactor. (Only 16~24HP) 2) Remove the discharge cabinet, motor base, beams in four sides, and two rear supports. <8 to 14HP(Fig.1)> Discharge cabinet : Screws M5×10, 8 pcs Motor base : M5×10, 4 pcs Beams in four sides : M5×10, 21 pcs Rear supports : M5×10, 6 pcs <16 to 24HP(Fig.2 to 4)> Discharge cabinet : M5×10, 12 pcs, M4×14, 2 pcs Closing panel : M5×10, 3 pcs Fixing board : M5×10, 3 pcs Upper beams : M5×10, 2 pcs Motor base : M5×10, 8 pcs Beams in four sides : M5×10, 23 pcs Rear supports : M5×10, 6 pcs  Fig. 5	<8 to 14HP>  Fig. 1 <16 to 24HP>  Fig. 2  Fig. 3  Fig. 4

No.	Part	Work procedure	Remarks
3	Heat exchanger (continued)	3) Cut the pipes at the heat exchanger (Fig.6, Fig.7).	

<8 to 14HP>

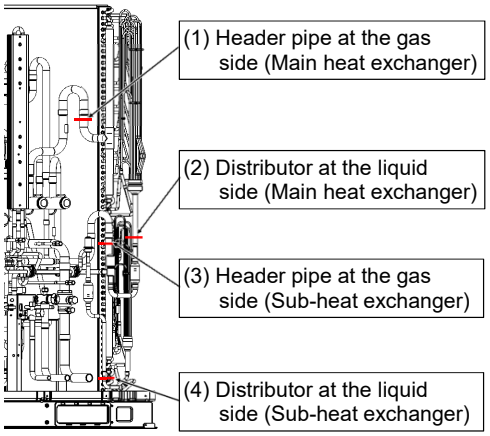


Fig. 6

<16 to 24HP>

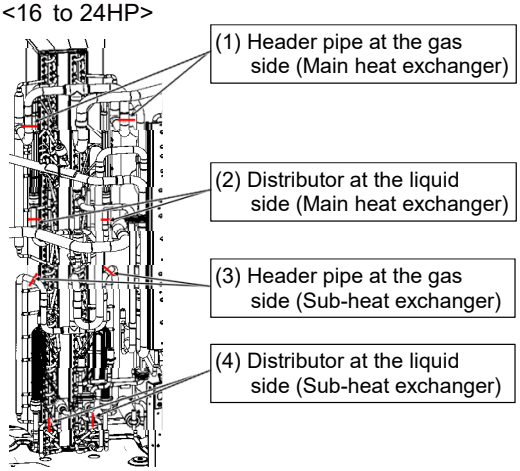


Fig. 7

4) Remove the heat exchanger while draw it upward or at rear side

<8 to 14HP (Fig.8)> : M5 × 10, 2 pcs

<16 to 24HP (Fig.9)> : M5 × 10, 8 pcs

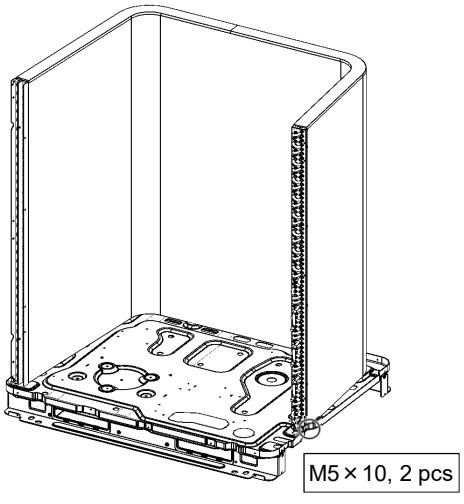


Fig. 8

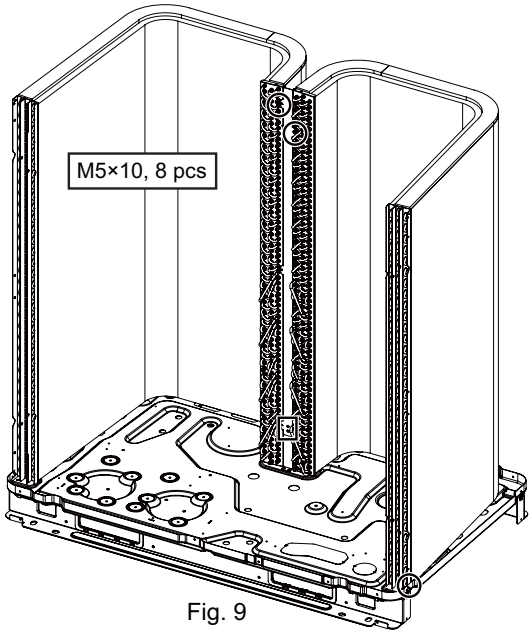
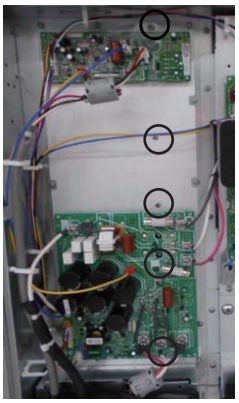
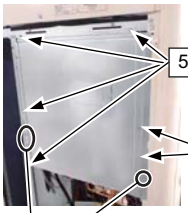
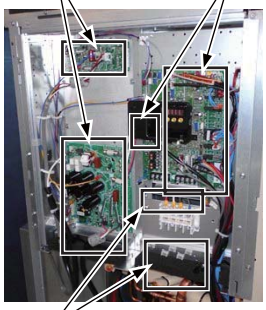
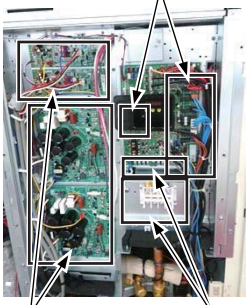
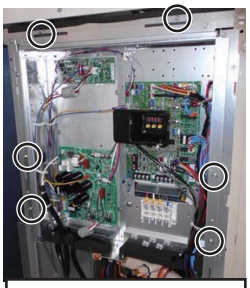
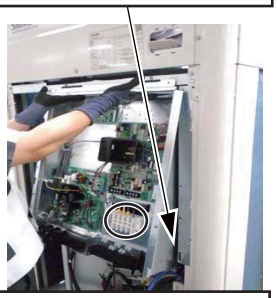
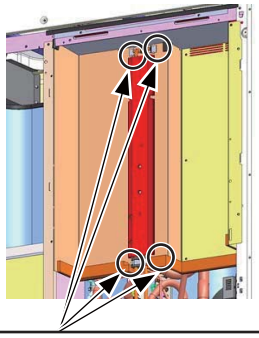


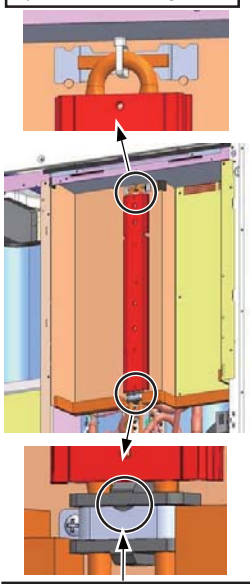
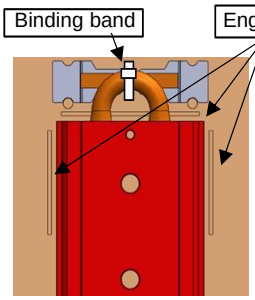
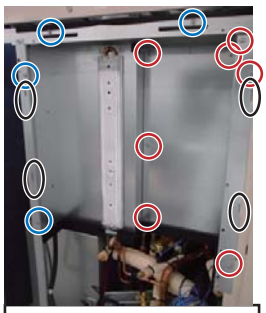
Fig. 9

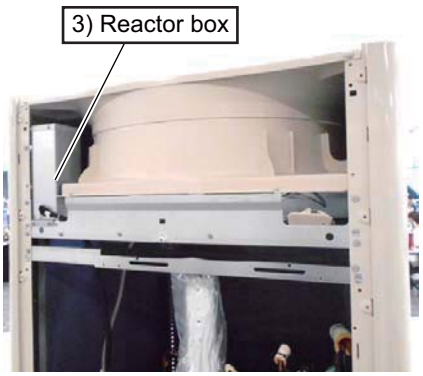
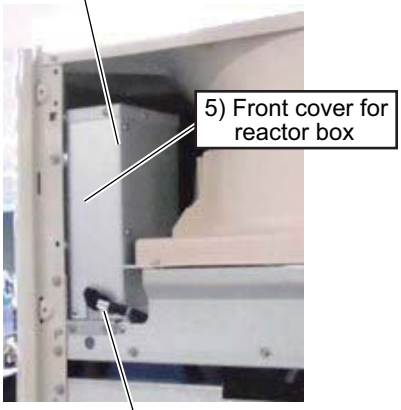
2. Attachment

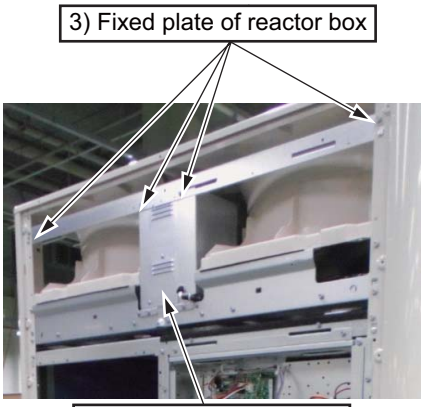
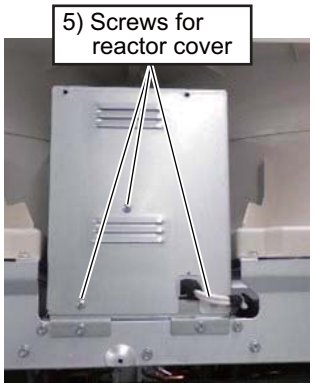
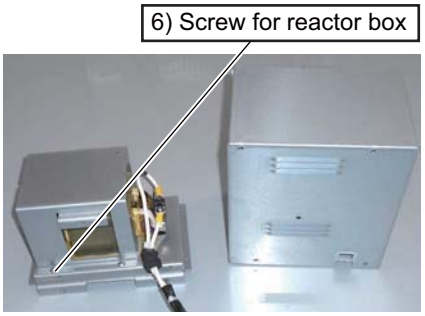
Carry out installation by following reverse procedure in the detachment 1) to 4).

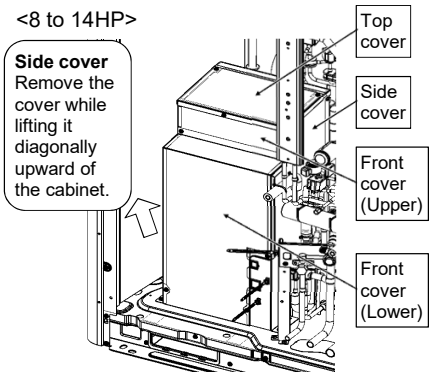
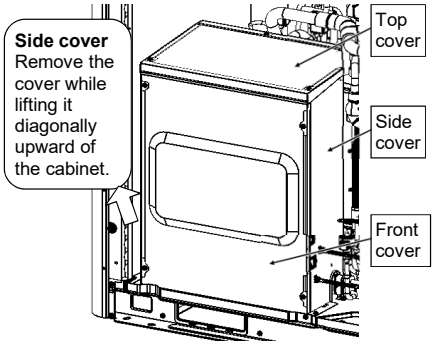
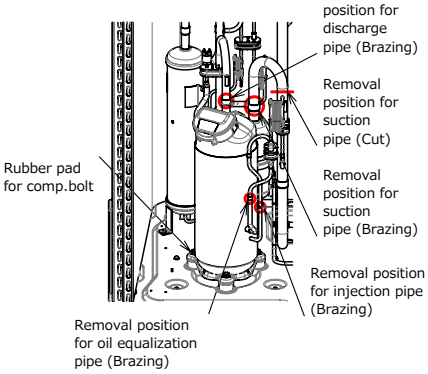
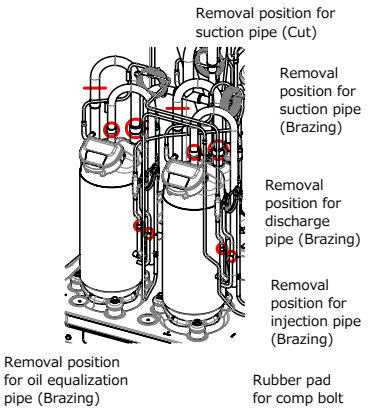
No.	Part	Work procedure	Remarks
4	Inverter assembly	**⚠ WARNING** Wear a pair of gloves. Otherwise, you will risk an injury involving a replacement part or some other object. **1. Detachment** 1) Stop the air conditioner operation, and turn off the circuit breaker. 2) Remove the inverter cover. 8 to 14HP : 2pcs., 16 to 24HP : 3pcs. 3) Remove the connectors and clamp, and remove each wire. 4) Remove the fixing screws for the heat sink. (8 to 14 HP : M4 × 16, 5 pcs 16 to 24 HP : M4 × 16, 6 pcs) To remove the heatsink easily, fix these screws to the holes next to the heatsink fixing holes for the upper and the lower parts of screws. 5) Remove the fixing screws for the box. (M5 ×10, 4 pcs for right and left, 2 pcs for top) 6) Lift up the box lightly to disengage the fixing hook at the right-lower part. (The lower part of the box comes out toward you.) 7) Hold the top board with both hands to disengage the top hook.  [8-14HP] 4) Replace the screws to the next holes to remove the heatsink easily. Don't forget fixing to the heatsink holes again when fixing the heatsink.  [16-24HP] 4) Replace the screws to the next holes to remove the heatsink easily. Don't forget fixing to the heatsink holes again when fixing the heatsink.	  Fixing part : Screw slot hole (Tentative structure) * Loosen the screw without removing it. 2) Screw for inverter cover 3) Comp., FM, or Reactor lead 3) Coil, sensor, heater, or NFC lead  3) Power supply Signal lead [8-14HP] Wiring position 3) Coil, sensor, heater, or NFC lead  3) Comp., FM, or Reactor lead 3) Power supply Signal lead [16-24HP] Wiring position

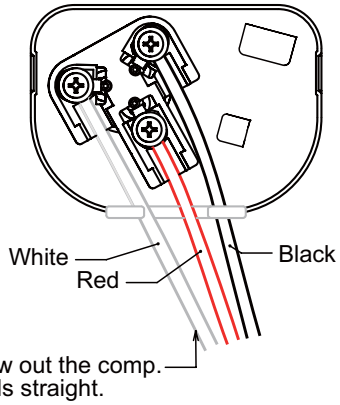
No.	Part	Work procedure	Remarks
4	Inverter assembly (continued)	**2. Attachment** 1) Carry out installation by following reverse procedure in the detachment 1) to 7). **NOTE 1** Apply thickly the heat sink grease to the refrigerant cooling heat sink and install the inverter box. Return the wires to the original state. (Application amount : 100 to 200 μm) Heat dissipation grease (Part No. : 43167044) **NOTE 2** If the refrigerant cooling heat sink is twisted significantly, adjust it so that it is parallel to the contact surface with the refrigerant cooling heat sink of the box; otherwise, poor contact may cause operation stop. Tightening torque of each fixing screws. Fix the following screws with the specified tightening torque. Power supply terminal block : 2.5 to 3.0 N•m Earth terminal block : 5.5 to 6.6 N•m Signal terminal block : 1.2 to 1.4 N•m INV P.C.board Comp.fixing : 1.9 to 2.1 N•m INV P.C.board Reactor fixing : 1.9 to 2.1N•m Refrigerant cooling heat sink fixed screw : 1.4 to 1.5 N•m	 5) Fixing screws for the box (6 pcs). (Equal to 8-24HP) 6) Disengage the fixing hook at the lower right. (Equal to 8-24HP)  7) Lift the inverter assembly lightly to disengage the upper hook (2 pcs), and remove the inverter assembly. (Equal to 8-24HP)  (NOTE1) Apply the heat sink grease to the refrigerant cooling heat sink and install the inverter box.  (NOTE 2) Adjust the refrigerant cooling heat sink so that it is parallel to the heat sink on the box. Follow the size below for the space between the waterproof cover and the refrigerant cooling heat sink Top space : 4 to 6mm, Bottom space : 4 to 6mm

No.	Part	Work procedure	Remarks
5	Waterproof cover assembly	**1. Detachment** 1) Stop the air conditioner operation, and turn off the circuit breaker. 2) Remove the inverter assembly. (Refer to the detachment for No.4 inverter assembly.) 3) Remove the binding band at the upper of the refrigerant cooling heat sink and the fixing rubber at the lower. 4) Loosen the clamp at the left side of the waterproof cover (8-14HP : 2 pcs, 16-24HP : 3 pcs) to remove the fan motor and reactor. 5) Remove the screws fixing right side of the cover and remove the two hooks hanged on the pillar. (M5 × 10, 7 pcs) 6) Remove the screws fixing left side of the cover and two hooks hanged on the pillar, and remove the cover from the right side of the heat sink while turning the cover clockwise. (8-14HP : M5 × 10, 4 pcs 16-24HP : M5 × 10, 5 pcs) **NOTE** Remove the refrigerant cooling heat sink with care not to bend it. **2. Attachment** 1) Carry out installation by following reverse procedure in the detachment 1) to 5). **NOTE** If the refrigerant cooling heat sink is twisted significantly, adjust it so that it is parallel to the contact surface with the refrigerant cooling heat sink of the box; otherwise, poor contact may cause operation stop. 1) Carry out installation by following reverse procedure in the detachment 1) to 7). **NOTE** Align the refrigerant cooling heat sink with the rib at the upper-center of the fixing rubber to install the fixing rubber for the heat sink.	3) Cut the binding band  Align the heat sink with the rib at the upper-center of the fixing rubber to install the fixing rubber.  Fix the refrigerant cooling heat sink positioned along engraving of waterproof cover. 3) Remove the screws (M4) and the clamp, and remove the fixing rubber.  4) Remove the fan motor and reactor lead from the clamp. (8-14HP : 2 pcs 16-24HP : 3 pcs)  Fixing the right waterproof cover 5) Fixing screw (Red) (8 to 24HP : 7 pcs) Hooking claw (Black : right 2 pcs) Fixing the left waterproof cover 5) Fixing screw (Blue) (8-14HP : 4 pcs, 16-24HP : 5 pcs) Hooking claw (Black : left 2 pcs)  6) Remove the left waterproof cover from the right side of the heat sink, while turning the cover clockwise.

No.	Part	Work procedure	Remarks
5	Reactor assembly (**8-14HP**)	**⚠ WARNING** Wear a pair of gloves. Otherwise, you will risk an injury involving a replacement part or some other object. **1. Detachment** 1) Stop the air conditioner operation, and turn off the circuit breaker. 2) Following to works 1) to 5) in 1 of No.1 Cabinet, remove the cabinets. 3) Remove the screws for the reactor box. (M5 × 10 2 pcs) 4) Remove the top plate for reactor box. (M4 × 8 3pcs) 5) Remove the front cover for reactor box. (M4 × 8 4pcs, Hook at the left) 6) Remove the reactor. (M4 × 8 2pcs, Hook at the left)	  
		2. Attachment Carry out installation by following reverse procedure in the detachment 1) to 7). Hook the hooks on each cabinet securely into the square holes in the supports.	

No.	Part	Work procedure	Remarks
5	Reactor assembly (**16-24HP**)	**⚠ WARNING** Wear a pair of gloves. Otherwise, you will risk an injury involving a replacement part or some other object. **1. Detachment** 1) Stop the air conditioner operation, and turn off the circuit breaker. 2) Following to works 1) to 5) in 1 of No.1 Cabinet, remove the cabinets. 3) Remove the screws for the fixed plate of reactor box. (M5 × 10, 4 pcs) 4) Remove the screws for the reactor box, and draw the reactor box toward you. (M5 × 10, 2 pcs, Rear side is hooked) 5) Remove the reactor cover. (M4 × 8, 6 pcs) 6) Remove the reactor. (M4 × 8, 4 pcs)	  
		2. Attachment Carry out installation by following reverse procedure in the detachment 1) to 6). Hook the hooks on each cabinet securely into the square holes in the supports. [When attaching two reactors for 16-24 HP] Be sure to wire the round type terminal leads to the specified reactors. Reactor 1: Wire the round type terminal lead without the black tape to the reactor 1. Reactor 2: Wire the round type terminal lead with the black tape to the reactor 2.	

No.	Part	Work procedure	Remarks
6	Compressor	**⚠ WARNING** Wear a pair of gloves. Otherwise, you will risk an injury involving a replacement part or some other object. **1. Detachment** 1) Carry out work of No. 1 Cabinet and remove the compressor cover and soundproof materials. **⚠ WARNING** Be careful of burns. The compressor cover is very hot immediately after outdoor unit stops. <8 to 14HP (Fig.10)> • Remove the cover in order of top, front (upper), front (lower), and side. • Screws for the compressor covers : M5 × 10, 8 pcs * Screws for the base plate and the comp. cover : M5 × 10, 4 pcs <16 to 24HP (Fig.11)> • Remove the cover in order of top, front (upper), front (lower), and side. • Screws for the compressor covers : M5 × 10, 7 pcs * Screws for the base plate and the comp. cover : M5 × 10, 4 pcs * Use the ratchet tools with its length adjusted to detach and attach the comp. cover if needed. 2) Disconnect the compressor lead, case heater, temperature sensor (TD, TK), pipe cover, and pipe fixing rubber, or move them away from parts to be brazed to prevent them from being fired while brazing. 3) Remove the pipes connected to the compressor in the order of oil equalizer pipe, injection pipe, discharge pipe, suction pipe*. * If the suction pipe cannot be removed through brazing, cut it at the position shown in the figure, and use the repair parts below to install the pipe. 4) Remove the compressor bolts and anti-vibration take the compressor out of the unit.	<8 to 14HP>  Fig. 10 <16 to 24HP>  Fig. 11 <8 to 14HP>  Fig. 12 <16 to 24HP>  Fig. 13

No.	Part	Work procedure	Remarks
6	Compressor (continued)	**2. Attachment** 1) Carry out installation by following reverse procedure in the detachment 1) to 4). 2) Install the compressor and braze the pipes, and then install each wire around the compressor. (Comp.lead, Case heater, Temperature sensor (TD, TK)) Exchange a comp. leads together as replacing a compressors. * The right fig. 1 shows caution when the comp. leads are installed. • Incorporate the terminal block into the compressor. • Bend each terminal at 90°while holding the terminal block so that it does not tilt. • To prevent the screws from being slanted, place the comp.leads in the specified position as shown in the figure, and then tighten the screw according to the following steps. (1) Temporary tightening the screws by your hand. (2) Tighten the screws securely with an electric screwdriver. (3) Tighten them with the specified torque using a torque wrench driver. (2.5N•m) * Do not screw the screws slantingly. Otherwise, the comp.leads may burn. • Insert the comp.leads into the sealing material, and attach the terminal cover so that they do not pinch with the terminal cover, and then draw out the comp.leads straightly. • Do not apply excessive stress to the comp.leads. • Do not put the protective tubes in the terminal cover. • Note that the leads do not touch the comp. shell. 3) Wrap the soundproof material*1 around the compressor and install the compressor cover *2. (Fig. 14 to 15) *1 Wrap the soundproof material around the compressor so that its bottom is put on the legs of the compressor. *2 Install the compressor cover so that pipes or wires around the comp. do not deform or are caught with the cover.	 [When attaching two compressors for 20 to 24 HP] Be sure to wire the comp. lead to the specified compressors. Compressor 1: Wire the longer lead to the left compressor. Compressor 2: Wire the shorter lead to the right compressor. ※ Since the connection terminal of 16 to 18HP are Faston, the installation management of this page is unnecessary.

<8 to 14HP>

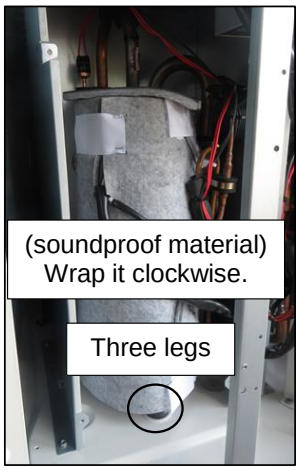


Fig. 14

<16 to 24HP> ※

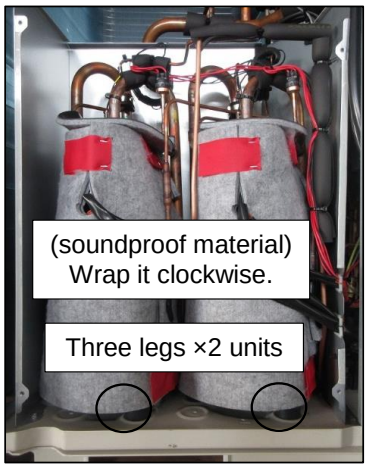
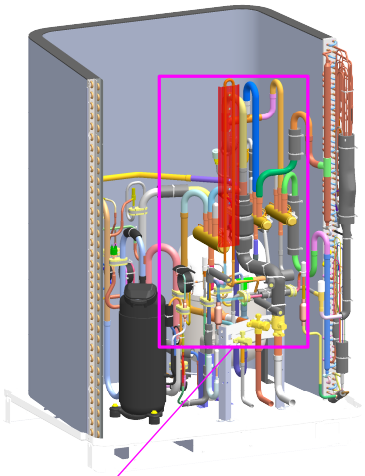
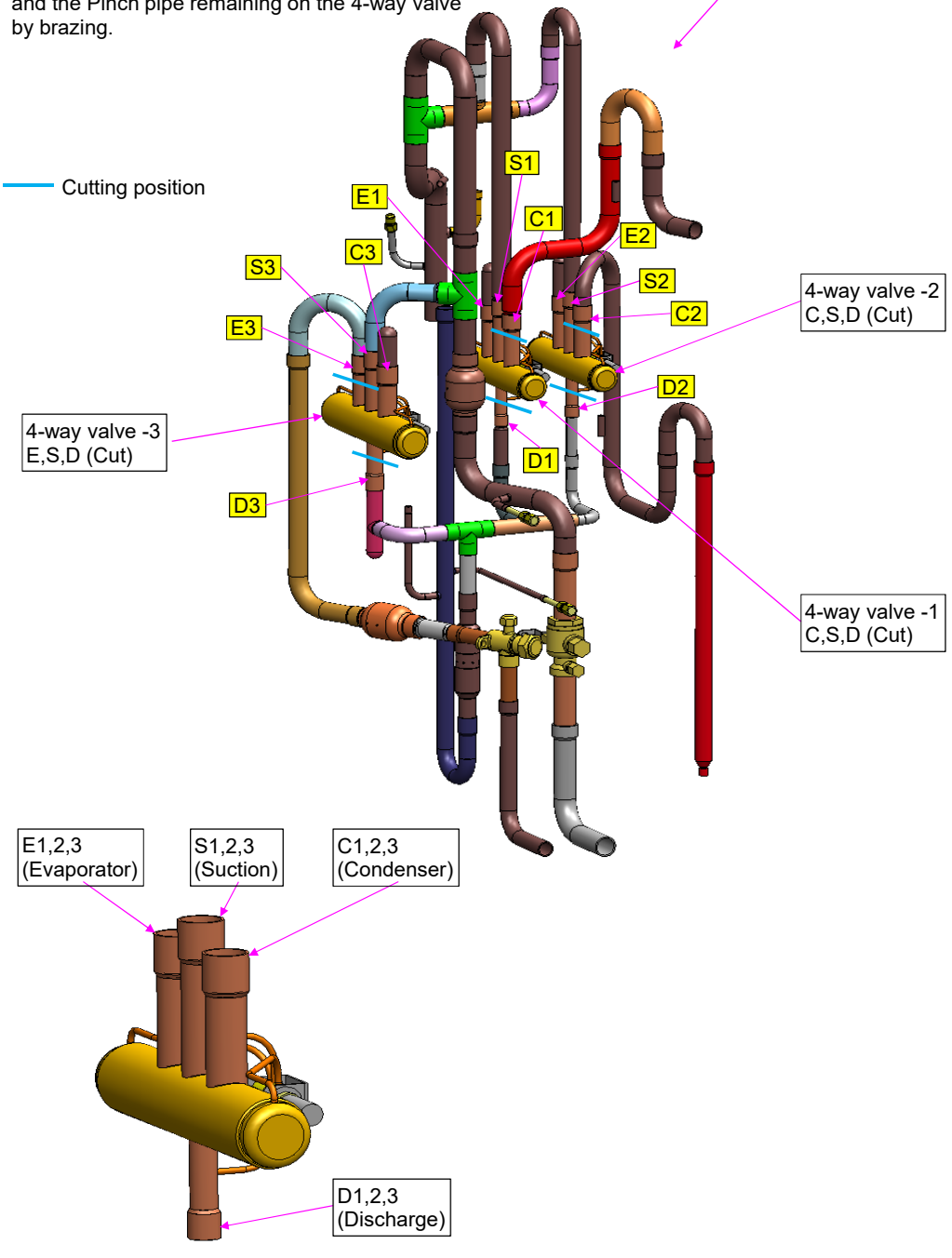
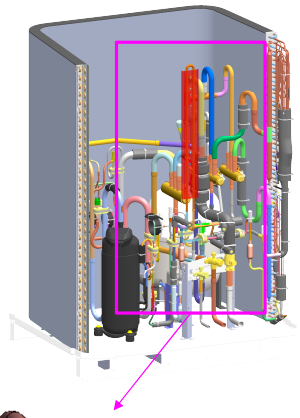
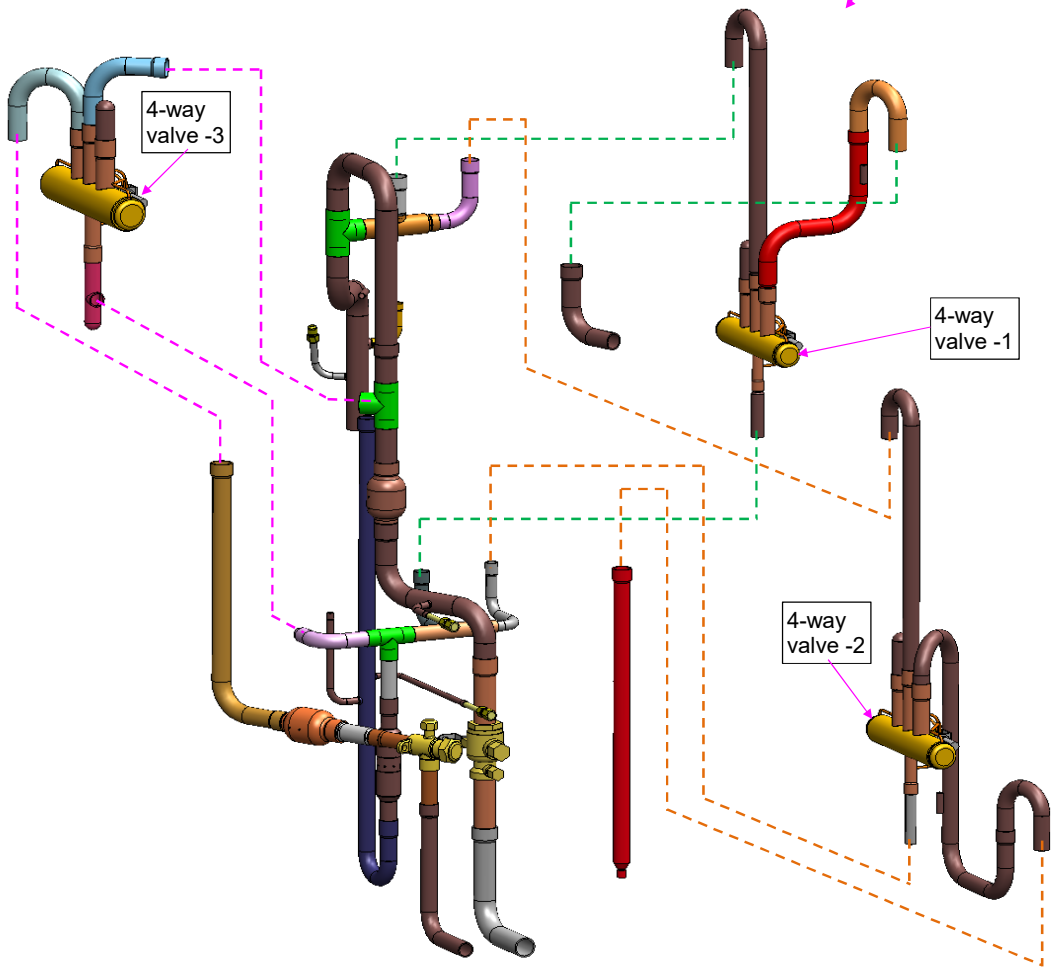


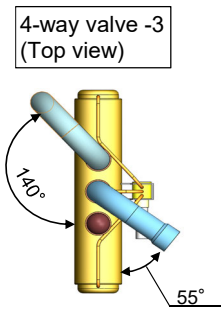
Fig. 15

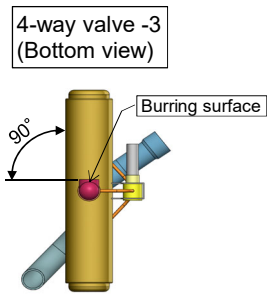
No.	Part	Work procedure	Remarks
7-1	4-way valve - detachment/ attachment <8 to 14HP>	⚠ WARNING Wear a pair of gloves. Otherwise, you will risk an injury involving a replacement part or some other object. 1.Detachment 1)Carry out work of No. 1 Cabinet and No.4 Inverter assembly. 2)Disconnect wires around 4-way valve or move them away from parts to be brazed to prevent them from being fired while brazing. 3)Cut the C,S and D pipes of the 4-way valve -1,2, and cut the E,S and D pipes of the 4-way valve -3, and then remove the 4-way valve. 4)Remove the 4-way valve piping remaining in the outdoor unit (after cutting) and the Pinch pipe remaining on the 4-way valve by brazing.	<8 to 14HP>  

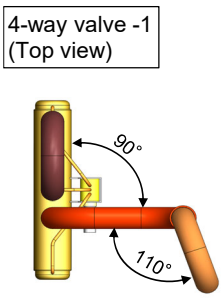
No.	Part	Work procedure	Remarks
7-1	4-way valve - detachment/ attachment (continued) <8 to 14HP>	⚠ WARNING Wear a pair of gloves. Otherwise, you will risk an injury involving a replacement part or some other object. 2.Attachment 1)Brazing the diverted piping connected to the top and bottom of the 4-way valves (service part). 2)Attach each 4-way valve assembly in the outdoor unit. Then, connect the 3 places of each 4-way valve assembly with brazing.	<8 to 14HP>

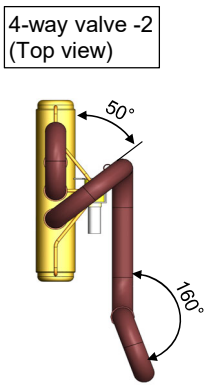


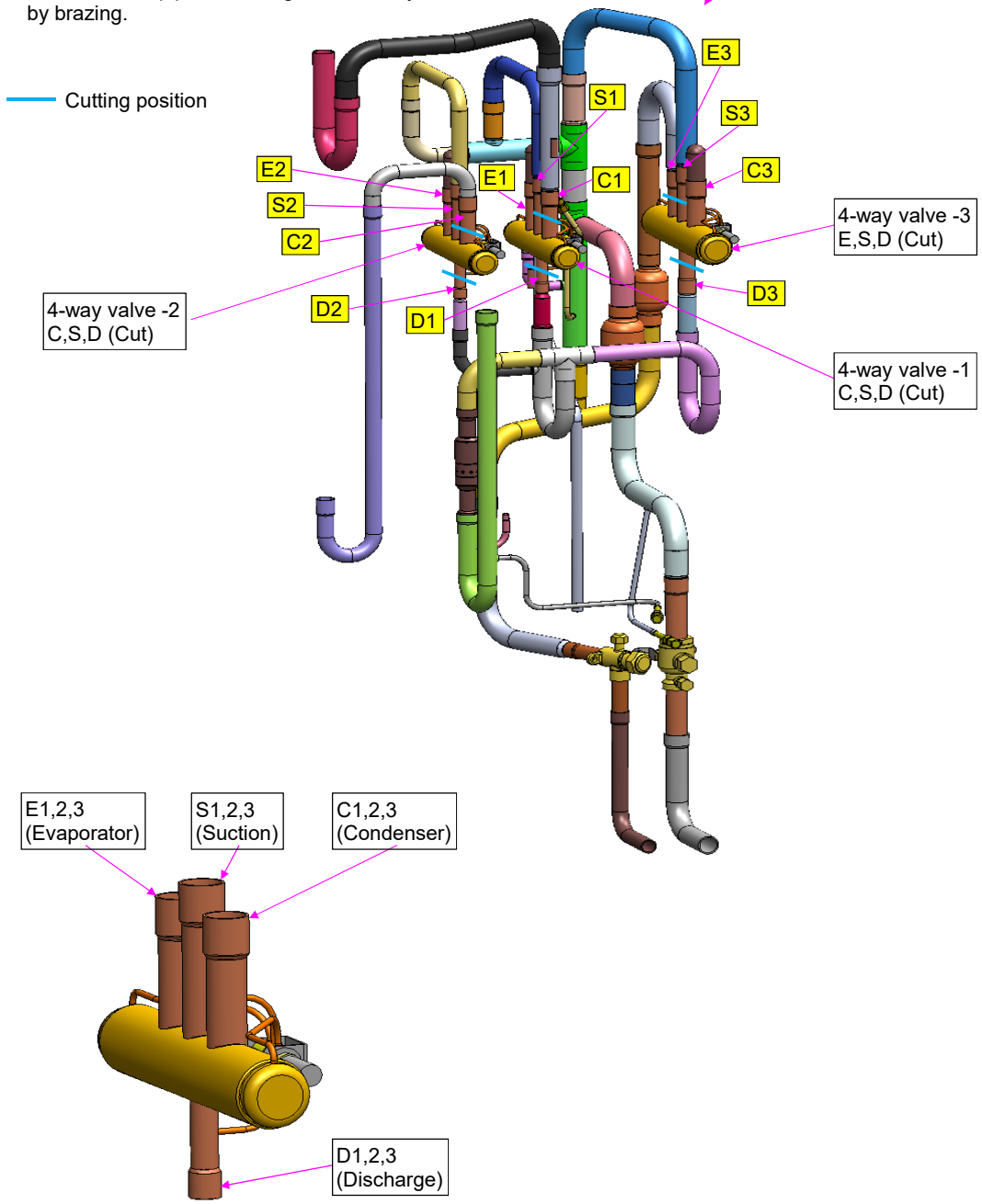
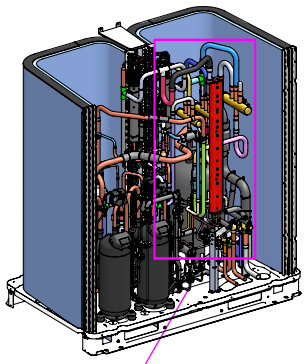




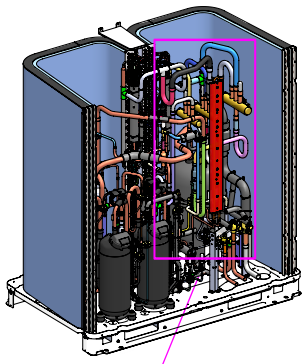


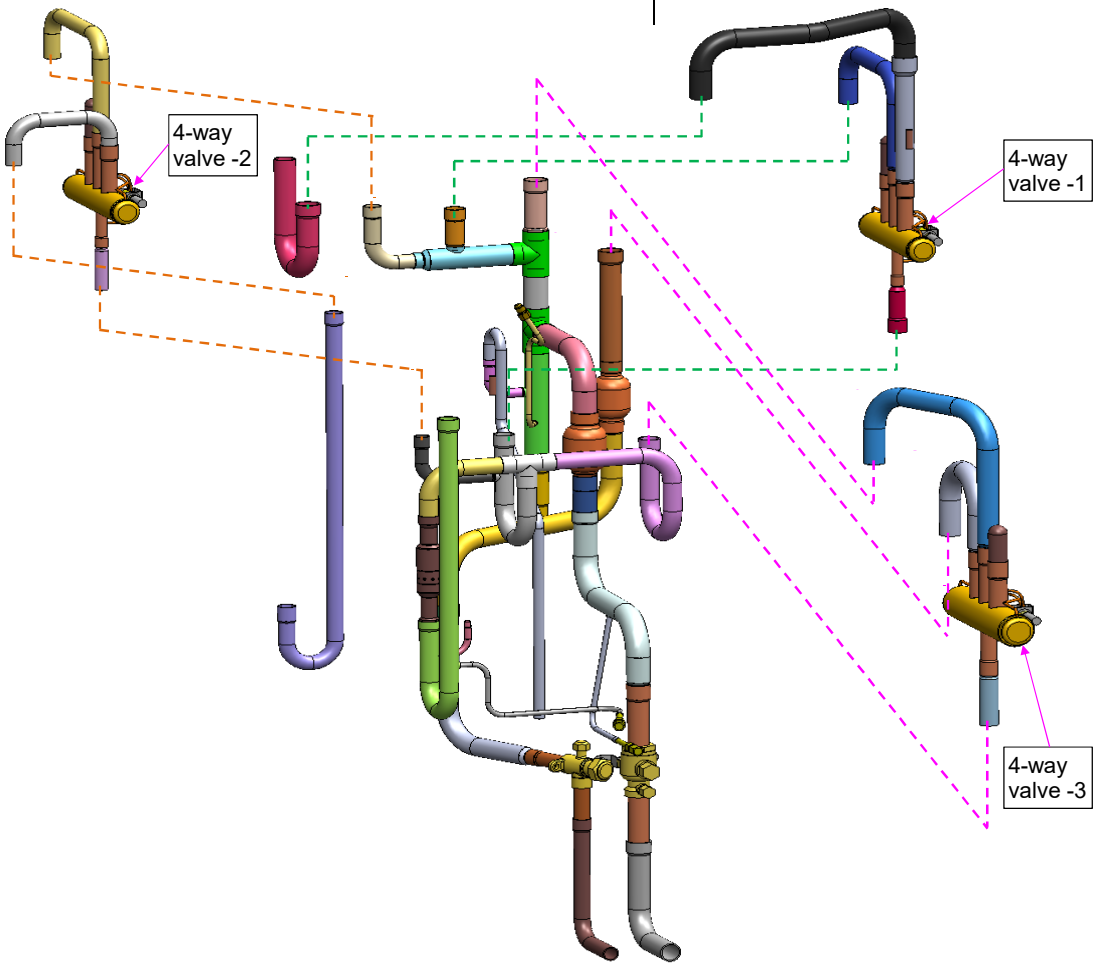


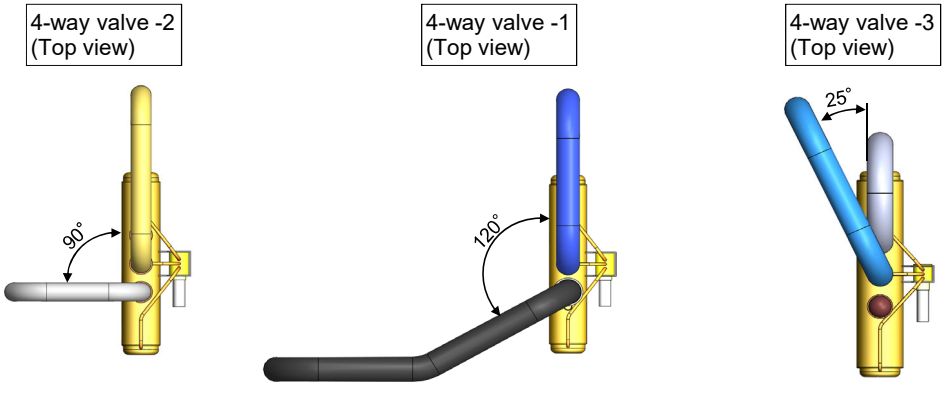


No.	Part	Work procedure	Remarks
7-2	4-way valve - detachment/ attachment <16 to 24HP>	⚠ WARNING Wear a pair of gloves. Otherwise, you will risk an injury involving a replacement part or some other object. 1.Detachment 1)Carry out work of No. 1 Cabinet and No.4 Inverter assembly. 2)Disconnect wires around 4-way valve or move them away from parts to be brazed to prevent them from being fired while brazing. 3)Cut the C,S and D pipes of the 4-way valve -1,2, and cut the E,S and D pipes of the 4-way valve -3, and then remove the 4-way valve. 4)Remove the 4-way valve piping remaining in the outdoor unit (after cutting) and the Pinch pipe remaining on the 4-way valve by brazing. Cutting position  	<16 to 24HP> 

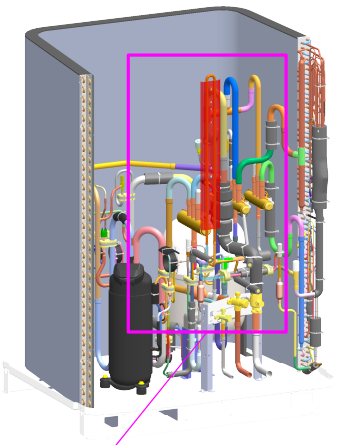
No.	Part	Work procedure	Remarks
7-2	4-way valve - detachment/ attachment (continued) <16 to 24HP>	⚠ WARNING Wear a pair of gloves. Otherwise, you will risk an injury involving a replacement part or some other object. 2.Attachment 1)Brazing the diverted piping connected to the top and bottom of the 4-way valves (service part). 2)Attach each 4-way valve assembly in the outdoor unit. Then, connect the 3 places of each 4-way valve assembly with brazing.	<16 to 24HP>

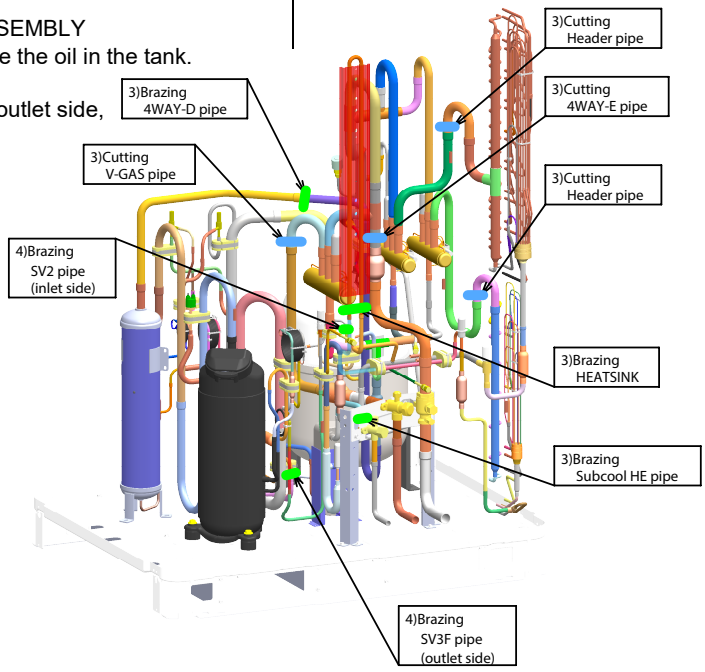


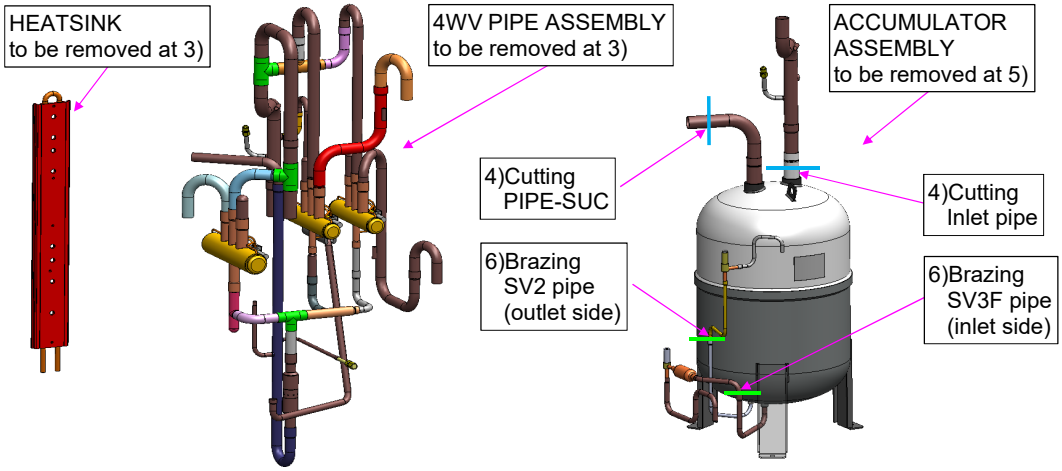


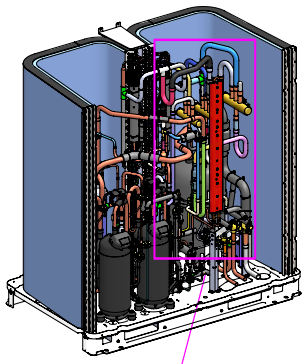
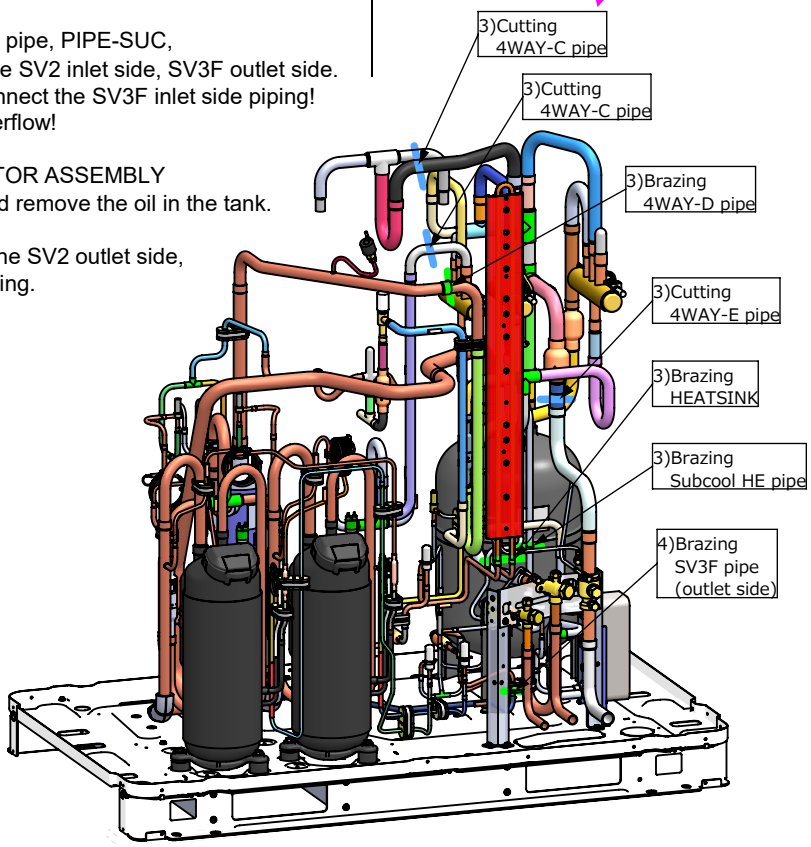
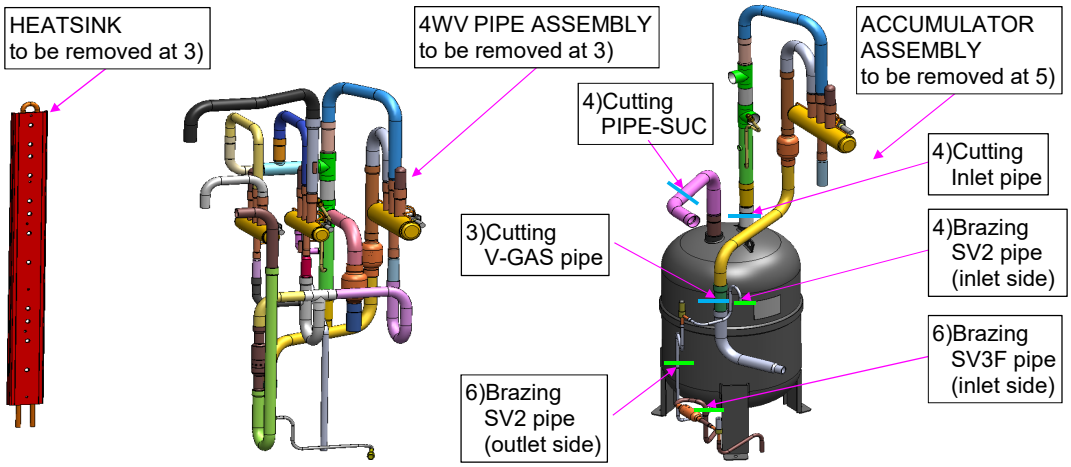


No.	Part	Work procedure	Remarks
8-1	Accumulator-detachment/attachment <8 to 14HP>	⚠ WARNING Wear a pair of gloves. Otherwise, you will risk an injury involving a replacement part or some other object. 1.Detachment 1)1)Carry out work of No. 1 Cabinet and No.4 Inverter assembly. 2)Disconnect the wire, pipe fixing rubber, and pipe cover near the pipe to be brazed to prevent burning during brazing. 3)Braze and cut the pipes, then disconnect the HEATSINK and 4WV PIPE ASSEMBLY from the outdoor unit in sequence. 4)Cut the accumulator Inlet pipe, PIPE-SUC, and braze the pipes of the SV2 inlet side, SV3F outlet side. *At this time, do not disconnect the SV3F inlet side piping! The oil in the tank will overflow! 5)Detach the ACCUMULATOR ASSEMBLY from the outdoor unit, and remove the oil in the tank. 6)Disconnect the pipes of the SV2 outlet side, SV3F inlet side with brazing. Cutting position Brazing position	<8 to 14HP>
		2.Attachment Attach the SV2 outlet side, SV3F inlet side pipes to the ACCUMULATOR ASSEMBLY(service parts) and braze them. After that, install in the reverse order of 1.Detachment1) to 6).	



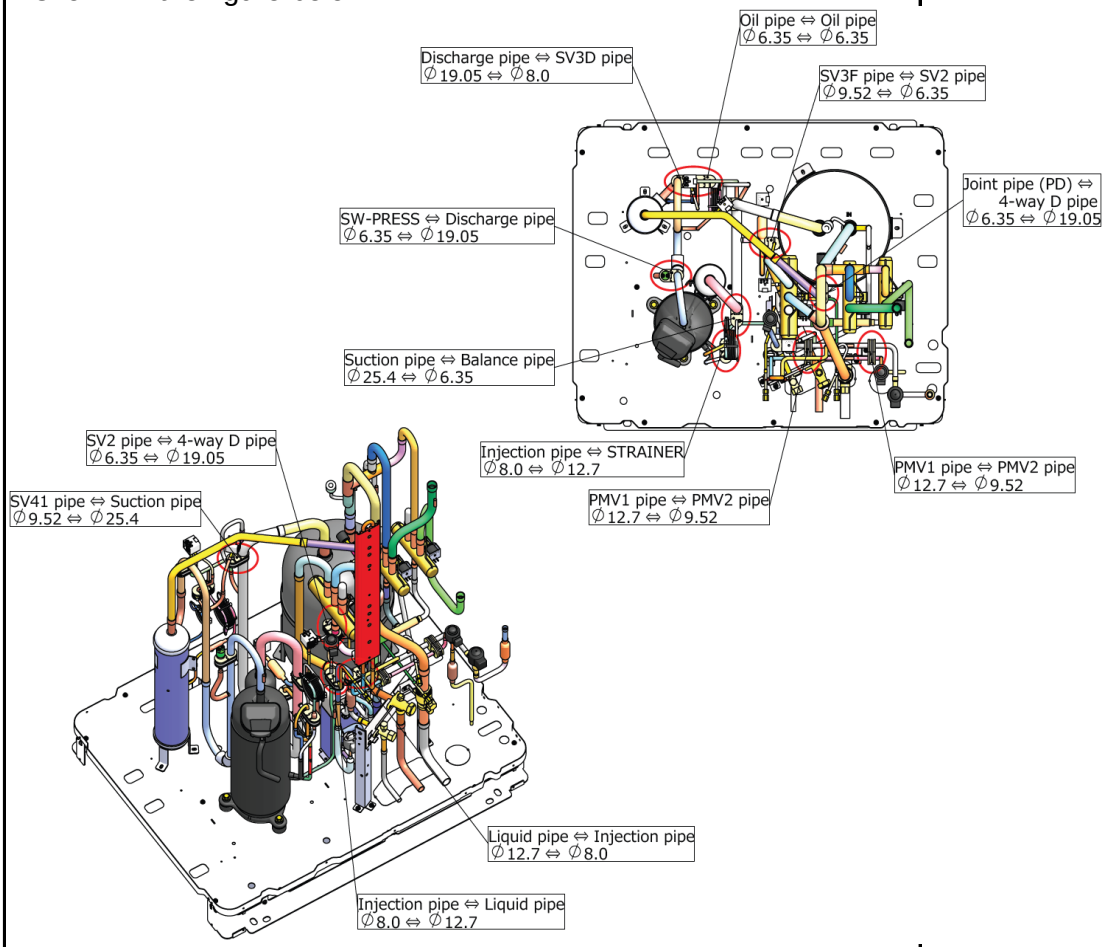




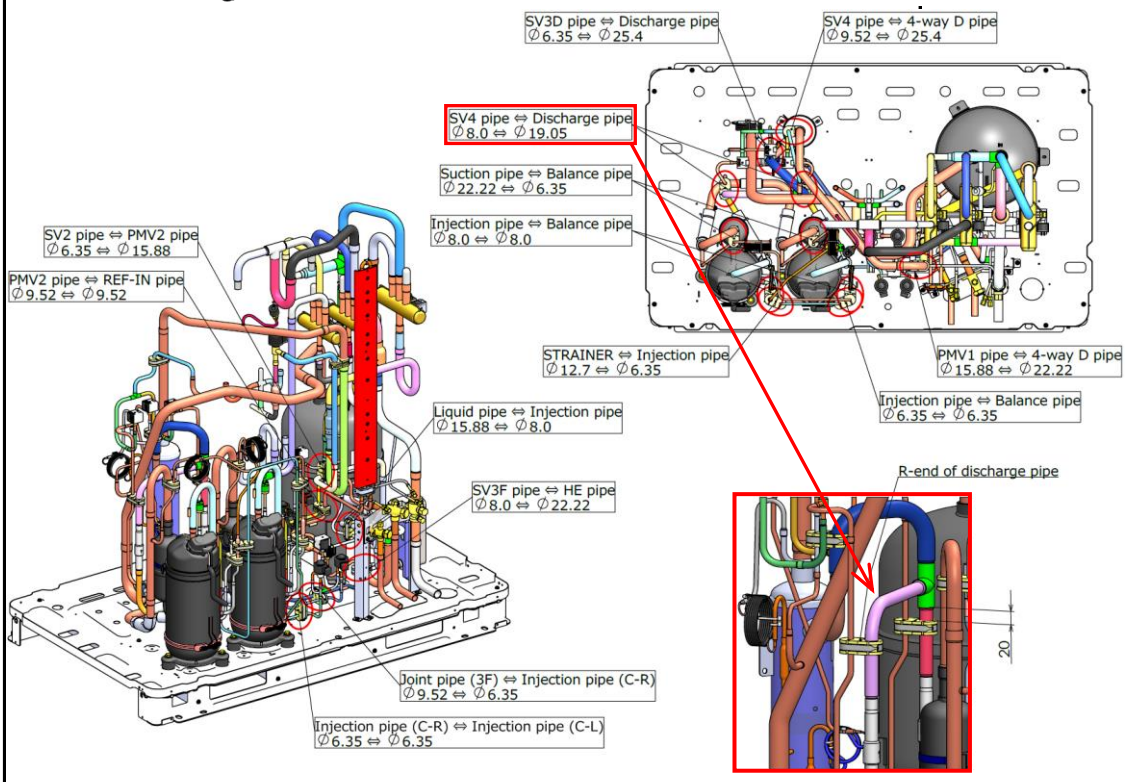
No.	Part	Work procedure	Remarks
8-2	Accumulator-detachment/attachment <16 to 24HP>	⚠ WARNING Wear a pair of gloves. Otherwise, you will risk an injury involving a replacement part or some other object. 1.Detachment 1)1)Carry out work of No. 1 Cabinet and No.4 Inverter assembly. 2)Disconnect the wire, pipe fixing rubber, and pipe cover near the pipe to be brazed to prevent burning during brazing. 3)Braze and cut the pipes, then disconnect the HEATSINK and 4WV PIPE ASSEMBLY from the outdoor unit in sequence. 4)Cut the accumulator Inlet pipe, PIPE-SUC, and braze the pipes of the SV2 inlet side, SV3F outlet side. *At this time, do not disconnect the SV3F inlet side piping! The oil in the tank will overflow! 5)Detach the ACCUMULATOR ASSEMBLY from the outdoor unit, and remove the oil in the tank. 6)Disconnect the pipes of the SV2 outlet side, SV3F inlet side with brazing.    2.Attachment Attach the SV2 outlet side, SV3F inlet side pipes to the ACCUMULATOR ASSEMBLY(service parts) and braze them. After that, install in the reverse order of 1.Detachment1) to 6).	<16 to 24HP>

No.	Part	Work procedure
9-1	Rubber	⚠ WARNING Wear a pair of gloves. Otherwise, you will risk an injury involving a replacement part or some other object. If the rubber is removed when replacing parts, install therubber as shown in the figure below.

<8 to 14HP>



<16 to 24HP>



Fixed position of support rubber

13. P.C. BOARD REPLACEMENT PROCEDURES

13-1. Replacement of outdoor P.C. board & Inverter Parts

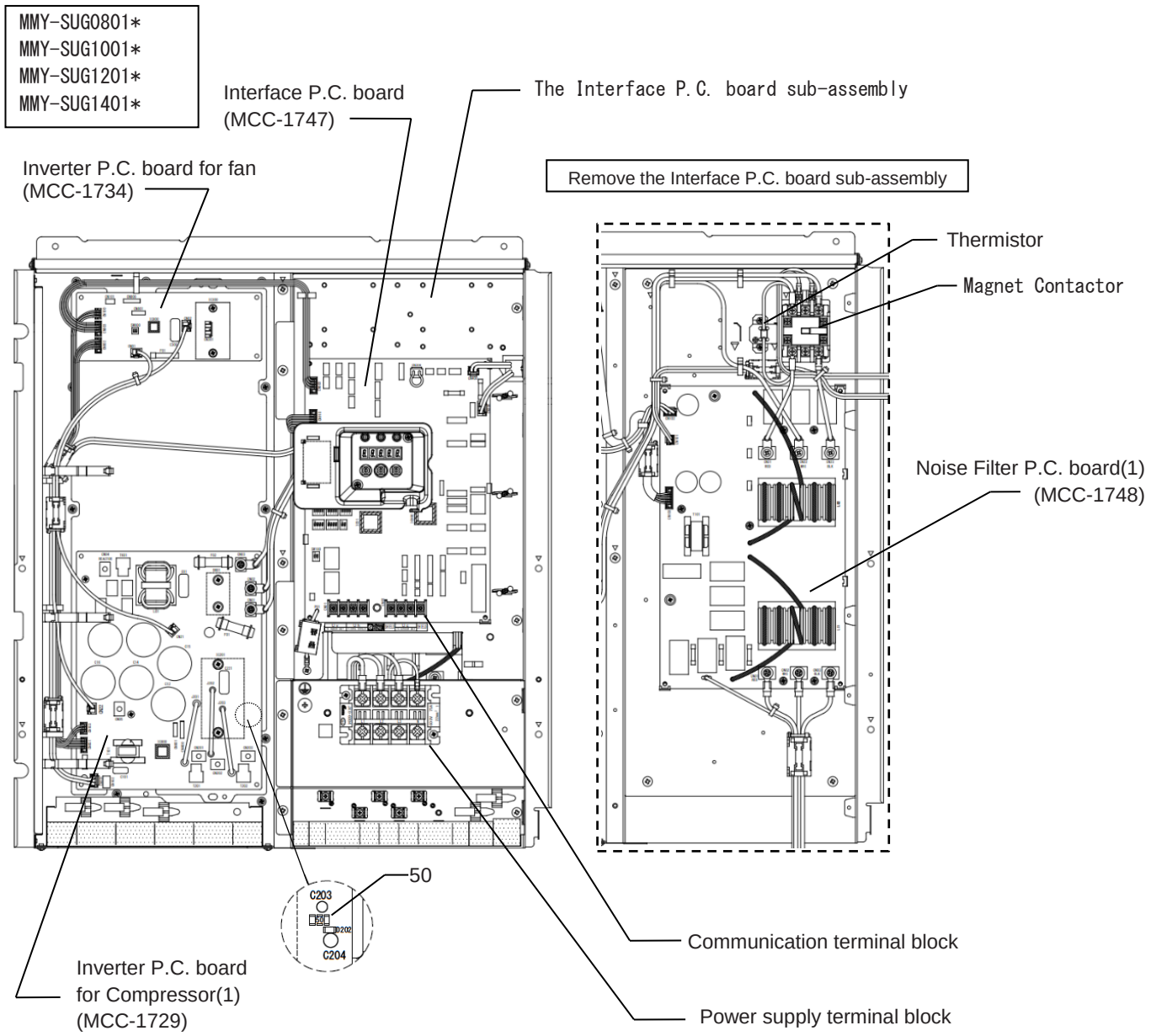
13-1-1. List of service parts (Inverter)

Parts code	Description	Applicable model	Parts	Product code	Specifications
43T60437	Power supply terminal block	MMY-SUG0801* MMY-SUG1001* MMY-SUG1201* MMY-SUG1401*	JXO-6004	TERMINAL (75A)	AC600V/75A,4P
43T6W888	Noise Filter P.C. board (1)		MCC-1748	S-ASM-PCB (N/F)	—
43TN9689	Interface P.C. board		MCC-1747	S-ASM-PCB (I/F)	—
43TN9690	Inverter P.C. board for Compressor (1)		MCC-1729	S-ASM-PCB (COMP)	50A
43T6W894	Inverter P.C. board for fan		MCC-1734	S-ASM-PCB (FAN)	—
43T52320	Magnet Contactor		FC-1S	MAG-CONTACTOR	—
43T50345	PTC Thermistor		MZ32-101R	THERMISTOR (PTC)	13A/AC500V

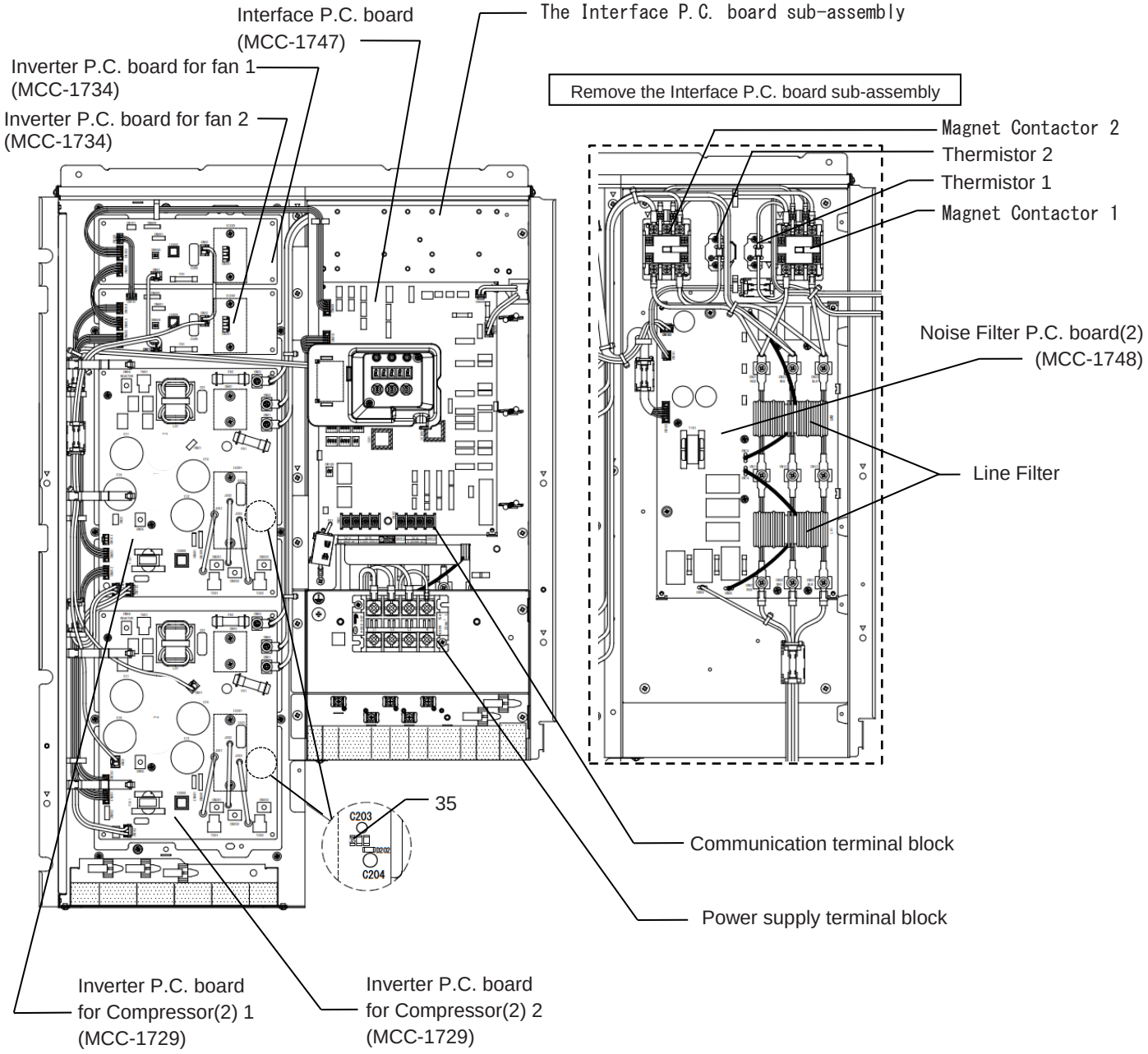
Parts code	Description	Applicable model	Parts	Product code	Specifications
43T60437	Power supply terminal block	MMY-SUG1601* MMY-SUG1801*	JXO-6004	TERMINAL (75A)	AC600V/75A,4P
43T6W889	Noise Filter P.C. board (2)		MCC-1748	S-ASM-PCB (N/F)	—
43T55376	Line filter		—	LINE-FILTER	0.9mH/AC460V/50A
43TN9689	Interface P.C. board		MCC-1747	S-ASM-PCB (I/F)	—
43TN9521	Inverter P.C. board for Compressor (2)		MCC-1729	S-ASM-PCB (COMP)	35A
43T6W894	Inverter P.C. board for fan		MCC-1734	S-ASM-PCB (FAN)	—
43T52320	Magnet Contactor		FC-1S	MAG-CONTACTOR	—
43T50345	PTC Thermistor		MZ32-101R	THERMISTOR (PTC)	13A/AC500V

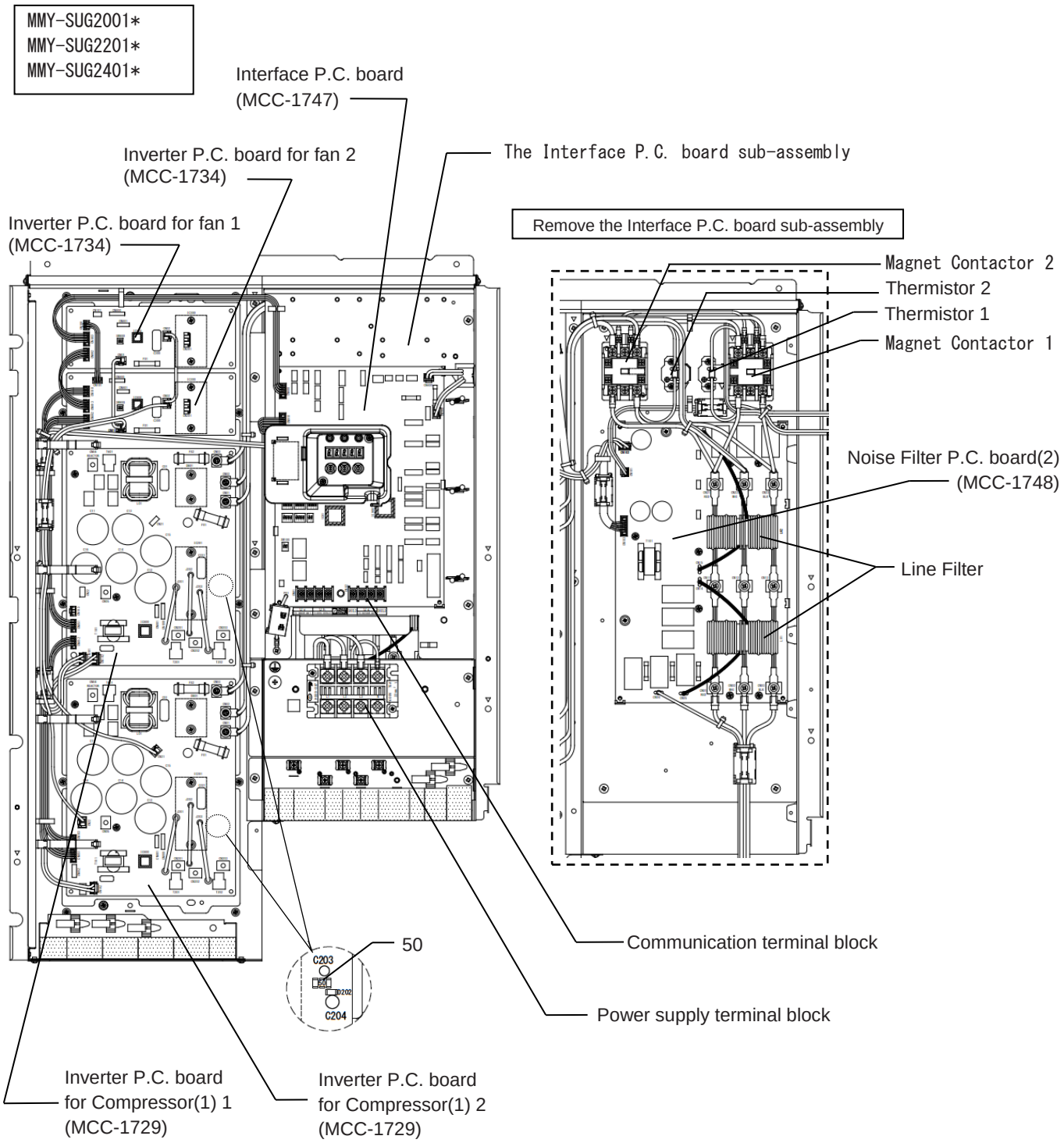
Parts code	Description	Applicable model	Parts	Product code	Specifications
43T60437	Power supply terminal block	MMY-SUG2001* MMY-SUG2201* MMY-SUG2401*	JXO-6004	TERMINAL (75A)	AC600V/75A,4P
43T6W889	Noise Filter P.C. board (2)		MCC-1748	S-ASM-PCB (N/F)	—
43T55376	Line filter		—	LINE-FILTER	0.9mH/AC460V/50A
43TN9689	Interface P.C. board		MCC-1747	S-ASM-PCB (I/F)	—
43TN9690	Inverter P.C. board for Compressor (1)		MCC-1729	S-ASM-PCB (COMP)	50A
43T6W894	Inverter P.C. board for fan		MCC-1734	S-ASM-PCB (FAN)	—
43T52320	Magnet Contactor		FC-1S	MAG-CONTACTOR	—
43T50345	PTC Thermistor		MZ32-101R	THERMISTOR (PTC)	13A/AC500V

13-1-2. Configuration of inverter assembly



MMY-SUG1601*
MMY-SUG1801*




MMY-SUG2001*
MMY-SUG2201*
MMY-SUG2401*
Interface P.C. board
(MCC-1747)
Inverter P.C. board for fan 2
(MCC-1734)
The Interface P.C. board sub-assembly
Inverter P.C. board for fan 1
(MCC-1734)
Remove the Interface P.C. board sub-assembly
Magnet Contactor 2
Thermistor 2
Thermistor 1
Magnet Contactor 1
Noise Filter P.C. board(2)
(MCC-1748)
Line Filter
Communication terminal block
Power supply terminal block
50
C203
C202
C204
Inverter P.C. board
for Compressor(1) 1
(MCC-1729)
Inverter P.C. board
for Compressor(1) 2
(MCC-1729)

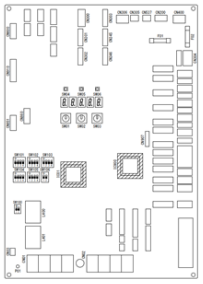
13-1-3. Interface P.C. Board (MCC-1747) Replacement Procedure

Target model　43TN9689: ALL models

This Interface service P.C. board is commonly installed in different models. After replacing the service board, Please change the model.

Included items:

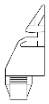
①MCC-1747 : 1pcs



②Spacer : 4pcs



③Spacer : 2pcs



④Support : 1pcs



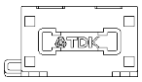
⑤Bush : 3pcs



⑥Short Connector : 1pcs



⑦Clamp filter：1pcs



Replacement steps:

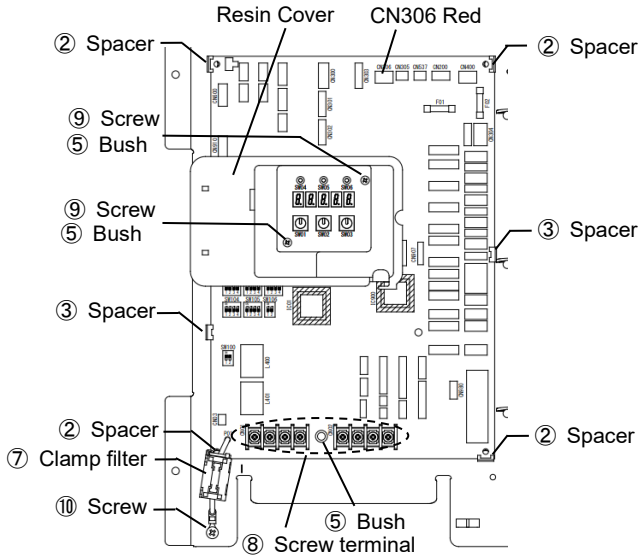
(1) Turn off the power supply of the outdoor unit and wait at least 5 minutes for the capacitor to discharge.

(2) Remove all of the connectors and wiring for screw terminals(⑧) which were connected to the interface P.C. board. (Remove the connectors by pulling the connector body. Do not pull the wire.)

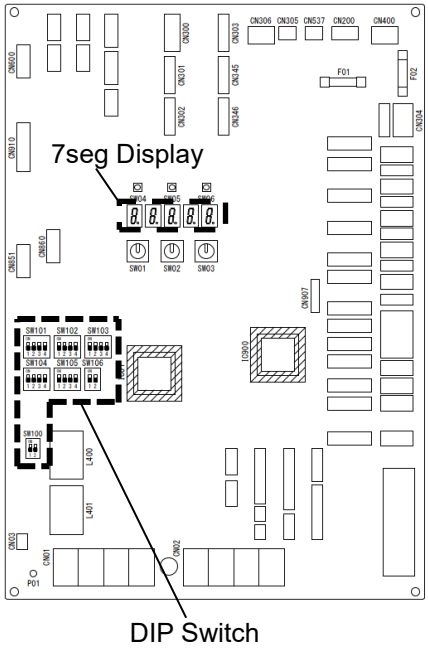
(3) Remove 3 screws(⑨:2pcs, ⑩:1pcs). (These screws are to be re-used after procedure.)

(4) Remove the P.C. board from the 6 spacers (②:4pcs, ③:2pcs)

(5) Set the DIP switch settings of the service board to match as before replacement.



Interface P.C.Board (43TN9689)



(6) Use new spacers(②, ③), a supporter(④) if they are broken.

(7) Using new bushes(⑤), attach the service board.

(8) Re-connect the connectors and resin cover, screws(⑨, ⑩), screw terminals(⑧). Be sure that all the connectors and the screw terminals are connected correctly and securely inserted.

The torque of the screws

⑧	Screw terminal	M4×10	1.2N·m
⑨	Screw	M3×25	0.6N·m
⑩	Screw	M4×8	1.2N·m

(9) Attach a new clamp filter(⑦) to the lead as in the above figure. And fix it with the lead using a cable tie. (The cable tie is included in the package of clamp filter(⑦).

(10) The product with HP-SW2 should connect HP-SW2 to CN306. The product without HP-SW2 should connect a short connector(⑥) to CN306.
Caution: Please do not use a short connector(⑥) for a product with HP-SW2.The protection circuit does not operate.

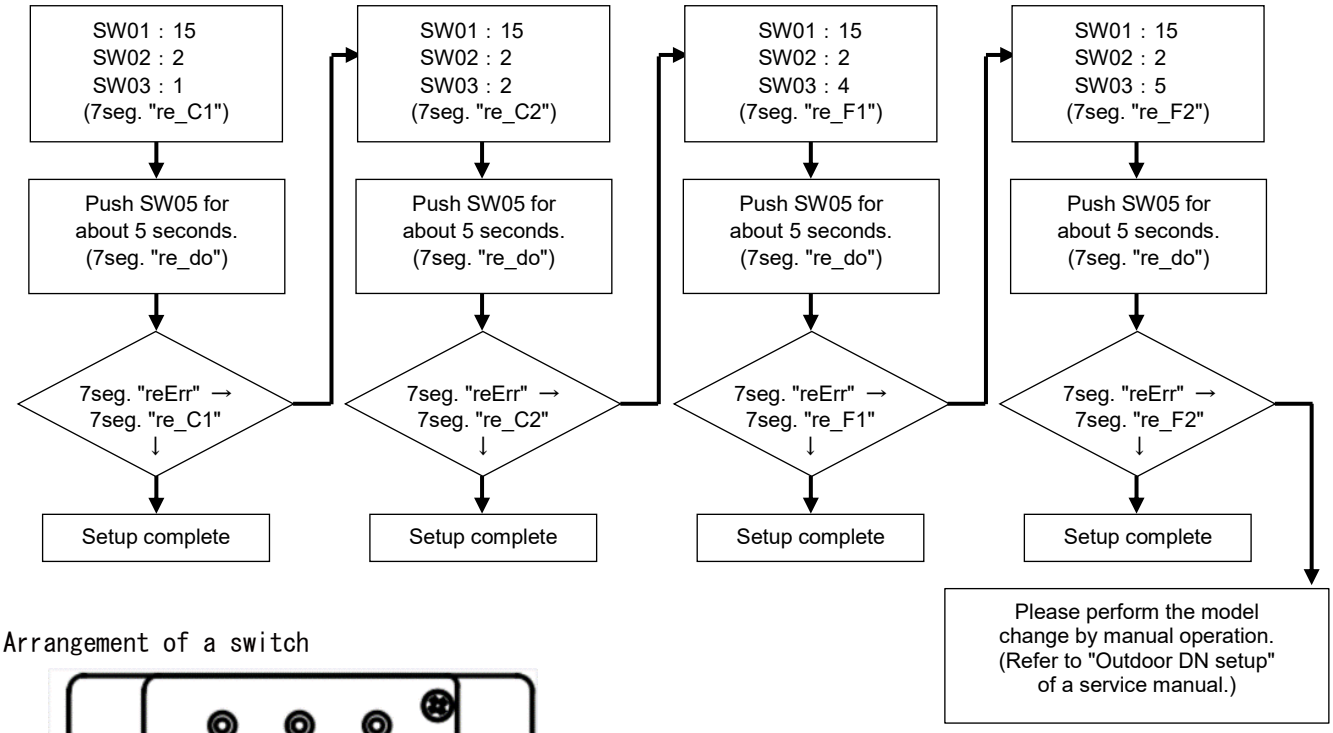
(11) If a component on the P.C. board is bent during board replacement, adjust it manually ensuring that it is not short or contact other parts.

(12) Install the cover, then turn on the power supply.

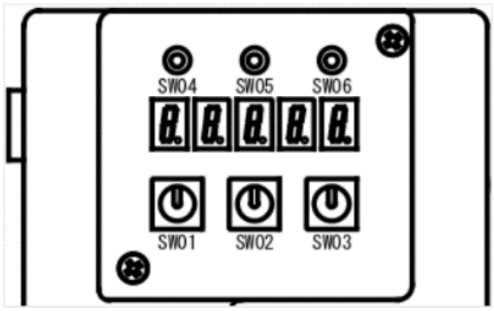
(13) “L10 : Outdoor capacity not set” check code is displayed on the 7-segment display.

Perform a model change by the following flow.

By completing this procedure, it is restored to the state before a model setup and a setup of the outdoor DN code (O.DN) exchanging. (The data of the model setup and the outdoor DN code (O.DN) is automatically backed up by the inverter P.C. board.)



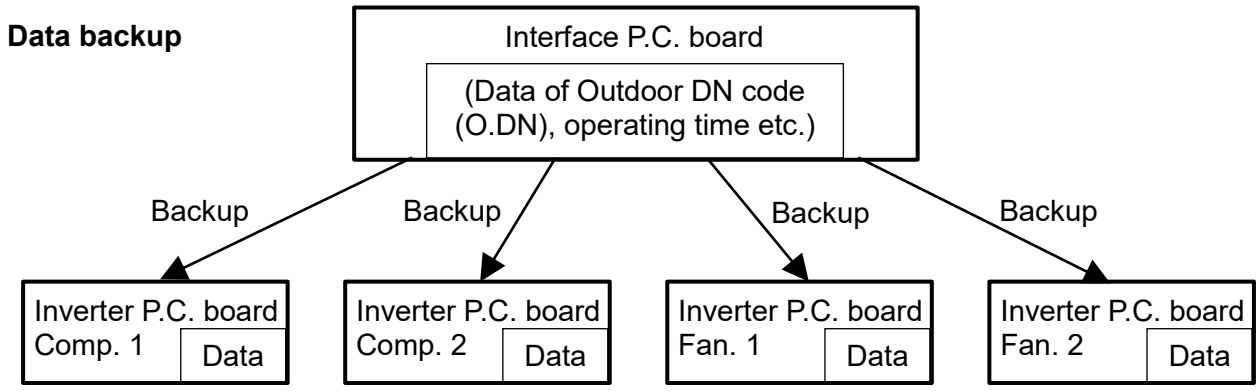
Arrangement of a switch



(14) Set SW01 : 1, SW02 : 1, SW03 : 1. Check the operation.

Appendix 1 Data backup

1) The Outdoor DN code (O.DN) data that includes the model settings from the interface P.C. board will automatically be backed up to the Inverter P.C. board for Compressor and Inverter P.C. board for fan.

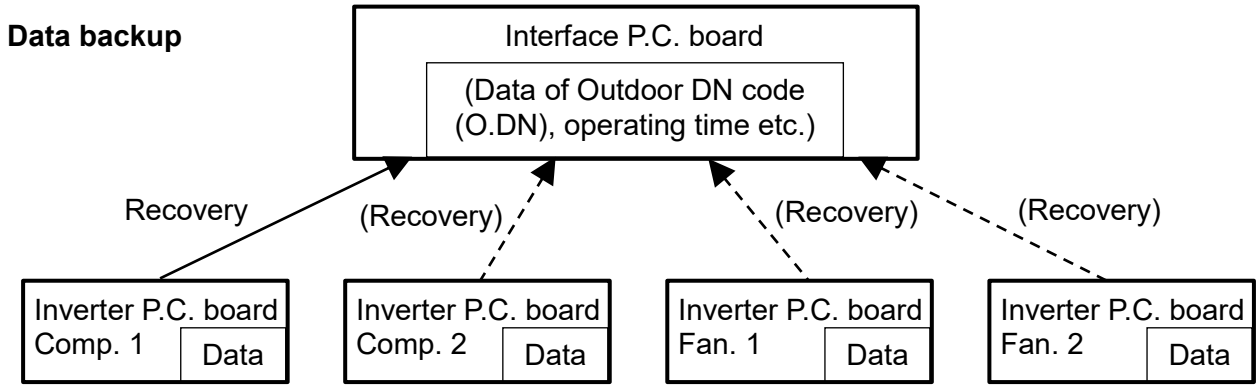


2) Data backup will be performed under one of the following conditions.
   • Every hour after power on (when the compressor is stopped)
   • When the outdoor DN code (O.DN) has been changed
   Caution should be taken, since the old data for the Inverter P.C. board will be overwritten.
3) The same backup data will be saved on each inverter P.C. board
4) Data backup prohibition settings
   Data backup prohibition settings will be activated when bit 1 on SW106 is turned ON.
   Set the data backup prohibition settings if backing up on interface P.C. board is not desired.

SW106	Bit 1	OFF : Normal (Data backup will be performed) ON : Data backup will not be performed on Inverter P.C. board.

Appendix 2 Data recovery

1) Data recovery will be performed from inverter P.C. board for Compressor 1, and if this fails, recovery will be performed from Compressor 2, Fan 1, and Fan 2, in that order.
   If this fails as well, the same data will be saved on each Inverter P.C. board, so data recovery will be done if recovery is successful from any of these Inverter P.C. boards.
   Skip this procedure if there is an Inverter P.C. board with a failure.



* Recovery is done if recovery is successful from either of the Inverter P.C. board.

2) Perform data recovery within one hour after powering if the Interface P.C. board has been replaced with a Service P.C. board. If one hour elapses after powering, data recovery will not be available since the data for the service P.C. board will be written to the Inverter P.C. board.
   If one hour is about to elapse before data recovery, turn the power OFF temporarily for the outdoor unit.
3) When performing data recovery, important data such as operating time will be recovered with the outdoor DN code (O.DN), so perform data recovery when replacing the Interface P.C. board, and set the Outdoor DN code (O.DN) manually if this is not possible.

Appendix 3 Model settings for case that data cannot be recovered

The model settings are unset on the service P.C. board, and in an unset state, the check code [L10] will be displayed and operation will not be available.
The model settings will be recovered with the data recovery, but if data recovery cannot be performed, set the Outdoor Unit Function Code (O.DN) [003] manually according to the model name of the outdoor unit.
Normal operations may not be available if the settings are different from those before replacing.

Model name	O.DN [003]
Undefined	0000
MMY-SUG0801******	0001
MMY-SUG1001******	0002
MMY-SUG1201******	0003
MMY-SUG1401******	0004
MMY-SUG1601******	0005
MMY-SUG1801******	0006
MMY-SUG2001******	0007
MMY-SUG2201******	0008
MMY-SUG2401******	0009

For the communication method setting (TCC-LINK / TU2C-LINK), all outdoor units and all indoor units in the same system must have the same settings. The factory setting of the service P.C. board is TCC-LINK communication. Check the DN code of the connected outdoor unit or indoor unit, and if it is set to TU2C-LINK, set the service P.C. board to TU2C-LINK as well.

	Outdoor unit (O.DN) [082]	Indoor unit (I.DN) [FC]
TCC-LINK	0000	0000
TU2C-LINK	0003	0003

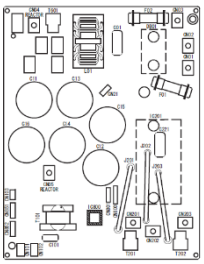
13-1-4. Compressor P.C. Board (MCC-1729) Replacement Procedure

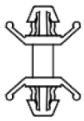
Target model 43TN9690: MMY-SUG0801*/1001*/1201*/1401*
MMY-SUG2001*/2201*/2401*
43TN9521: MMY-SUG1601*/1801*

This board is commonly installed in different models. Set the DIP switch (SW800) settings of the service board to match as before replacement.

Included items:

① MCC-1729 : 1pcs ② Spacer : 4pcs ③ Bush : 2pcs ④ Collar : 2pcs









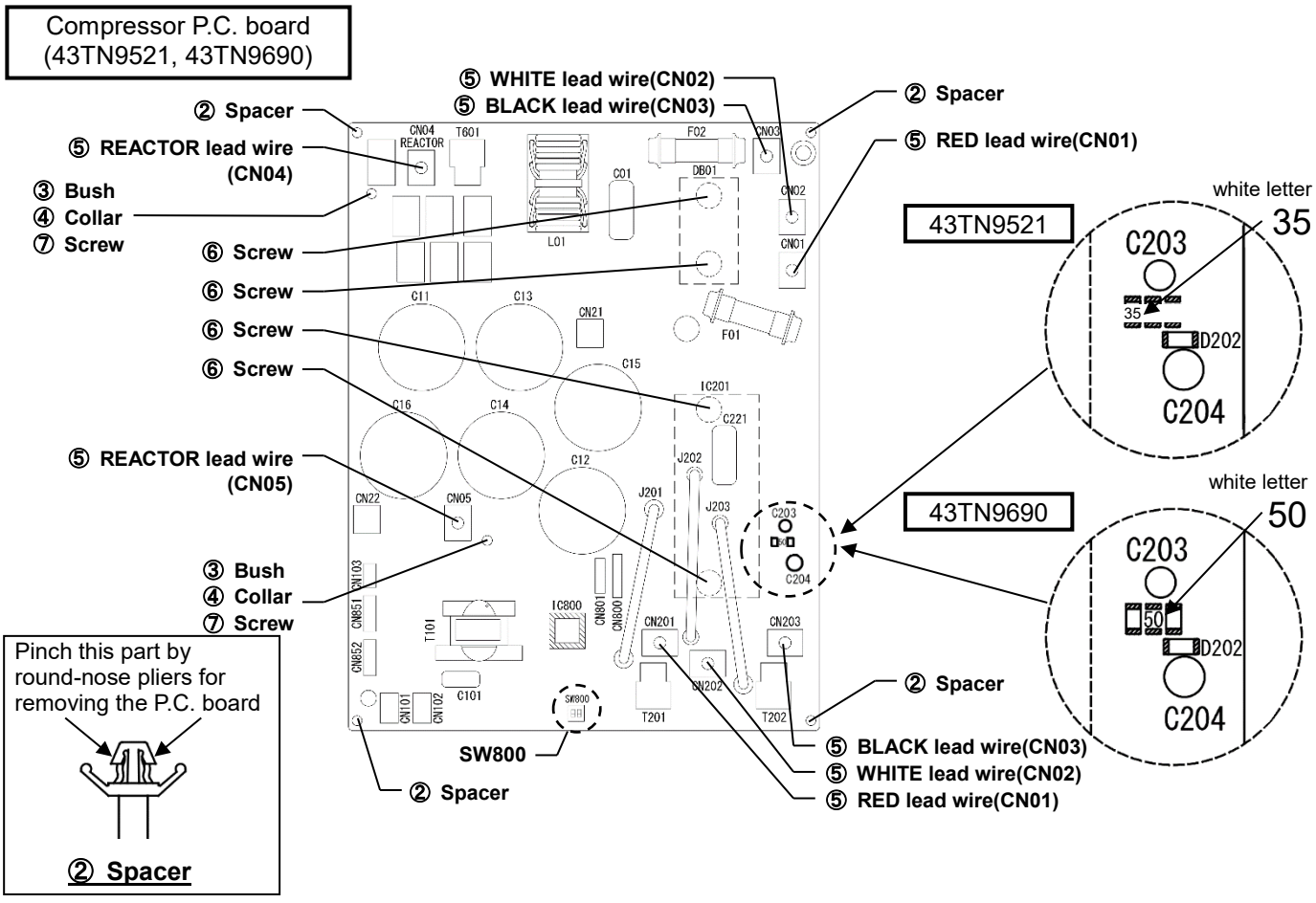
Replacement Steps:

(1) Turn off the power supply of the outdoor unit and wait at least 5 minutes for the capacitor to discharge.

(2) Remove all of the connector and screw terminals(⑤ : 8pcs) which were connected to the Compressor P.C. board. (Remove the connectors by pulling the connector body. Do not pull the wire.)

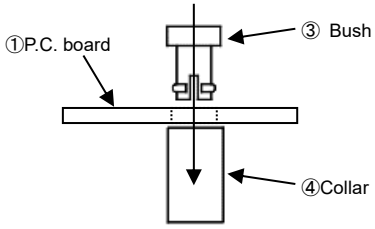
(3) Remove 6 screws(⑥ : 4pcs, ⑦ : 2pcs).
(These screws are to be re-used after procedure.)

(4) Remove the P.C. board from the 4 spacers (②) by round-nose pliers.

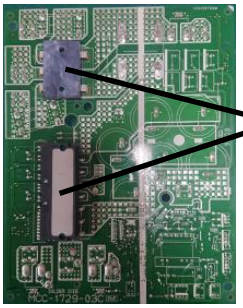


(5) Set the DIP switch (SW800) settings of the service board to match as before replacement.

(6) Exchange spacers (②) and attach collars(④) and bushes(③) to the service P.C. board(①).



(7) Apply the Silicone Thermal Grease to the semiconductors (DB01, IC201) on the service P.C. board, and align the positions of the heat sink holes to mount the Compressor P.C. board on the outdoor control unit. And fix the Compressor P.C. board to the outdoor control unit by the spacers (②).



Uniformly apply the Silicone Thermal Grease to the heat dissipating surfaces of the IPM (IC201) and rectifier (DB01).
Note: Do this work carefully. Please do not soil or scratch the area which attaches the semiconductor of a heat sink.

Silicone Thermal Grease use one of the following
- Momentive Performance Materiais "TIG1000"
- Dow Cornig Toray "SC102"
- Mizutani Electric Ind "HSC1000"
- Shin-Etsu Chemical "G-746" or "G-747"

(8) Screw the Compressor P.C. board to the heat sink by the 6 screws (⑥, ⑦) that were removed in step (3). If the screws are loose, the semiconductors will generate heat, and cause it to breakdown. Do not use an electric driver or an air driver. The semiconductor may receive a damage.

The torque of the screws

⑤	Screw terminal	M5×10	1.8N･m
⑥	DB01, Q201	M4×15	1.2N･m
⑦	collar and bush	M3×25	0.6N･m

(9) Re-connect the connectors and screw terminals (⑤). Be sure that all the connectors and the screw terminals are connected correctly and securely inserted.

(10) If the components on the P.C. board were bent during board replacement, adjust it manually ensuring that it is not short or contact other parts.

(11) Install the cover, then turn on the supply. Check the operation.

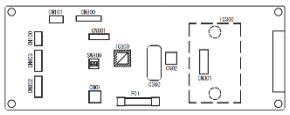
13-1-5. Fan-Motor P.C. Board (MCC-1734) Replacement Procedure

Target model　43T6W894: ALL model

This board is commonly installed in different models. Set the DIP switch (SW800) settings of the service board to match as before replacement.

Included items:

① MCC-1734 : 1pcs



② Spacer : 4pcs



Replacement steps:

(1) Turn off the power supply of the outdoor unit and wait at least 5 minutes for the capacitor to discharge.

(2) Remove all of the connector which were connected to the Fan-motor P.C. board. (Remove the connectors by pulling the connector body. Do not pull the wire.)

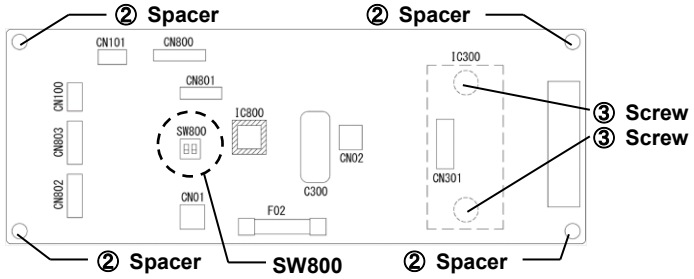
(3) Remove 2 screws(③).
(These screws are to be re-used after procedure.)

(4) Remove the P.C. board from 4 spacers(②) by round-nose pliers.

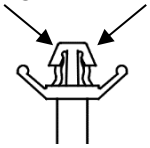
(5) Set the SW800 setting of the service P.C. board to match as before replacement.

(6) Apply the Silicone Thermal Grease to the semiconductors (IC300) on the service P.C. board, and align the positions of the heat sink holes to mount the Fan-motor P.C. board on the outdoor control unit. And fix the Fan-motor P.C. board to the outdoor control unit by the spacers (②).

Fan-motor P.C. board
(43T6W894)



Pinch this part by round-nose pliers for removing the P.C. board



② Spacer



Uniformly apply the Silicone Thermal Grease to the heat dissipating surfaces of the IPM (IC300).
Note: Do this work carefully. Please do not soil or scratch the area which attaches the semiconductor of a heat sink.

Silicone Thermal Grease use one of the following
- Momentive Performance Materiais ''TIG1000''
- Mizutani Electric Ind ''HSC1000''
- Shin-Etsu Chemical ''G-746'' or ''G-747''
- Dow Cornig Toray ''SC102''

(7) Screw the Fan-motor P.C. board to the heat sink by the 2 screws (③) that were removed in step (3).
If the screws are loose, the semiconductors will generate heat, and cause it to breakdown.
Do not use an electric driver or an air driver.
The semiconductor may receive a damage.

The torque of the screws

③	Screw	M3 × 14	0.6N·m

(8) Re-connect the connectors. Be sure that all the connectors are connected correctly and securely inserted.

(9) If the components on the P.C. board were bent during board replacement, adjust it manually ensuring that it is not short or contact other parts.

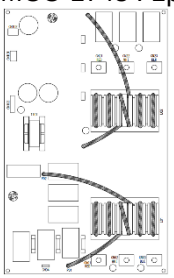
(10) Install the cover, then turn on the supply. Check the operation.

13-1-6. Noise Filter P.C. Board (1) (MCC-1748) Replacement Procedure

Target model 43T6W888: MMY-SUG0801*/1001*/1201*/1401*

Included items:

① MCC-1748 : 1pcs ② Spacer : 4pcs ③ Spacer : 2pcs ④ Bush : 6pcs






Replacement Steps:

(1) Turn off the power supply of the outdoor unit and wait at least 5 minutes for the capacitor to discharge.

(2) Remove all of the connector and solderless terminal tab (CN04), screw terminals (⑦: 6pcs) which were connected to the Noise Filter P.C. board. Solderless terminal tab need to push lock pin. (Remove the connectors by pulling the connector body. Do not pull the wire.)

(3) Remove 8 screws(⑤ : 6pcs, ⑥ : 2pcs). (These screws are to be re-used after procedure.)

(4) Remove the P.C. board from the 6 spacers (②:4pcs, ③:2pcs).

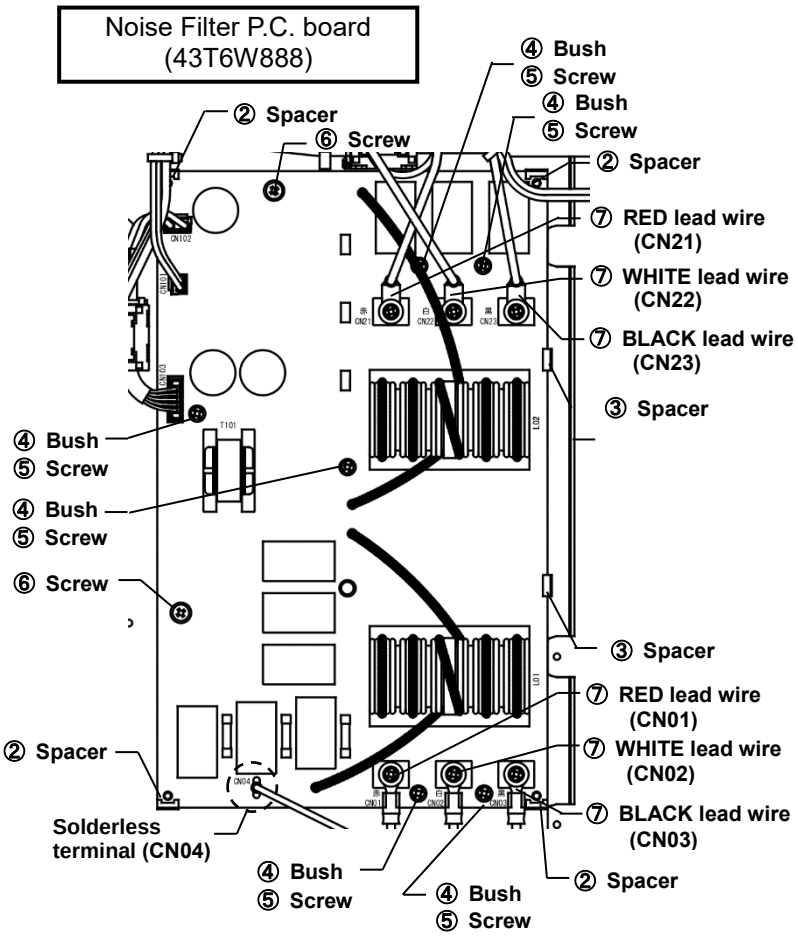
(5) Using new spacers(②, ③), bushes(④), attach the service board.

(6) Screw the Noise Filter P.C. board by the 8 screws (⑤, ⑥) that were removed in step (4).

(7) Re-connect the connectors and screw terminals(⑦), solderless terminal tab(CN04). Be sure that all the connectors and the screw terminals are connected correctly and securely inserted.

(8) If the components on the P.C. board were bent during board replacement, adjust it manually ensuring that it is not short or contact other parts.

(9) Install the cover, then turn on the supply. Check the operation.



The torque of the screws

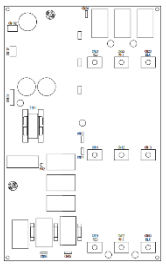
⑤	Screw	M3×18	0.6N·m
⑥	Screw	M4×8	1.2N·m
⑦	Screw terminal	M6×12	2.5N·m

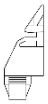
13-1-7. Noise Filter P.C. Board (2) (MCC-1748) Replacement Procedure

Target model 43T6W889: MMY-SUG1601*/1801*/2001*/2201*/2401*

Included items:

① MCC-1748 : 1pcs ② Spacer : 4pcs ③ Spacer : 2pcs ④ Bush : 6pcs






Replacement Steps:

(1) Turn off the power supply of the outdoor unit and wait at least 5 minutes for the capacitor to discharge.

(2) Remove all of the connector and solderless terminal tabs(CN04, CN05, CN14, CN15, CN24), screw terminals(⑦ : 9pcs), Line-Filter which were connected to the Noise Filter P.C. board. (Remove the connectors by pulling the connector body. Do not pull the wire.)

(3) Remove 8 screws(⑤ : 6pcs, ⑥ : 2pcs). (These screws are to be re-used after procedure.)

(4) Remove the P.C. board from 6 spacers (②:4pcs, ③:2pcs).

(5) Using new spacers(②, ③), bushes(④), attach the service board.

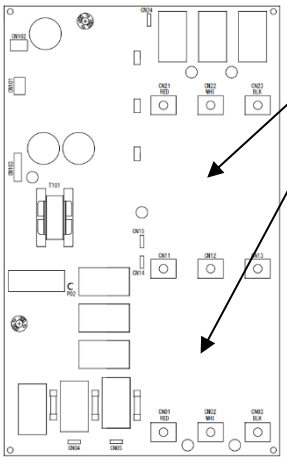
(6) Screw the Noise Filter P.C. board by 8 screws (⑤, ⑥) that were removed in step (3).

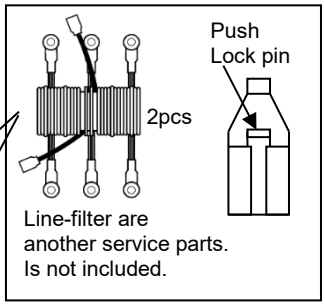
(7) Re-connect the connectors and screw terminals(⑦), Line-Filters, solderless terminal tabs (CN04, CN05, CN14, CN15, CN24). Be sure that all the connectors and the screw terminals are connected correctly and securely inserted.

(8) If the components on the P.C. board were bent during board replacement, adjust it manually ensuring that it is not short or contact other parts.

(9) Install the cover, then turn on the supply. Check the operation.

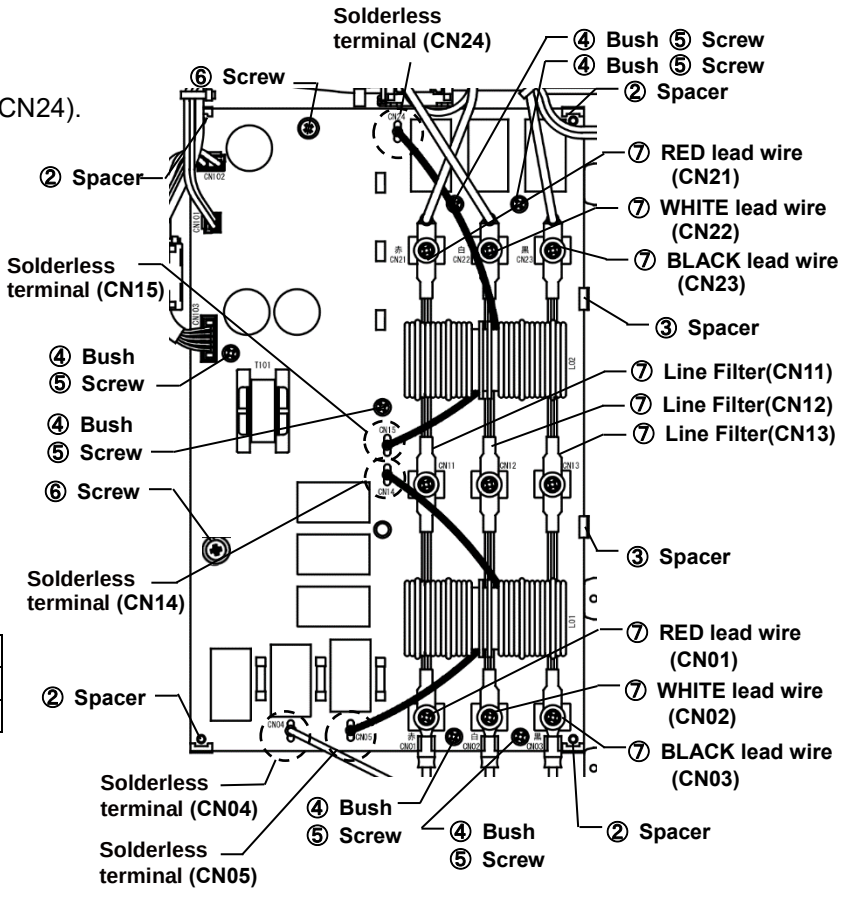
Noise Filter P.C. board (43T6W889)





How to remove a Line-filter

a) Remove the solderless terminal tabs. (CN05, CN14, CN15, CN24)
b) Remove the screw terminals. (CN01, CN02, CN03)
c) Remove the screws (CN11, CN12, CN13), holding the lower Line-filter (L01).
d) Remove the screw (CN21, CN22, CN23), holding the upper Line-filter(L02).
*L01 and L02 are same parts.



The torque of the screws

⑤	Screw	M3×18	0.6N·m
⑥	Screw	M4×8	1.2N·m
⑦	Screw terminal	M6×12	2.5N·m

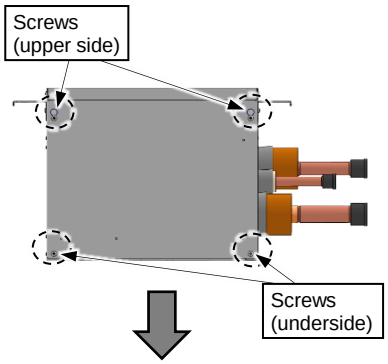
14. FLOW SELECTOR UNIT PARTS REPLACEMENT

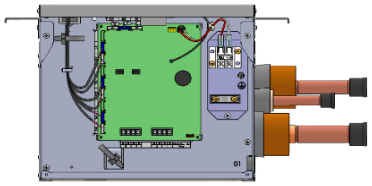
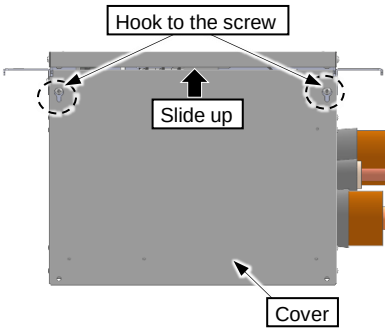
14-1. Flow Selector unit Multi-port type including Battery kit

<table>
<tr><th>No.</th><th>Part</th><th>Work procedure</th><th>Remarks</th></tr>
<tr><td>1</td><td>Electrical control box cover</td><td>
⚠WARNING
・Wear a pair of gloves.
Otherwise, you will risk an injury involving a replacement part or some other object.
・Stop the power supply of the air conditioner and turn off switch of the power supply breaker.

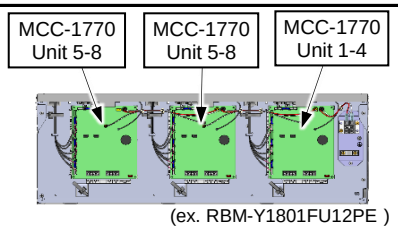
1. Detachment
1) Remove the screws of under side.
(M4 x 8, 2 pcs)
2) Loosen fixing screws of upper side.
(M4 x 8, 2 pcs)
3) Pull the cover downward and then remove the cover.

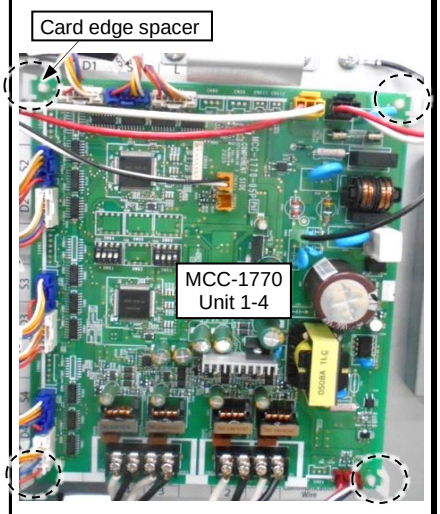
2 Attachment
1) Hook the electrical control box cover on the screw on the upper side. (2 places)
2) Slide up the cover and fit it in.
Work carefully so as not to pinch the wires inside the box.

3) Fix the underside with screws.
(M4 x 8, 2 pcs)
4) Tighten the screws of upper side.
(M4 x 8, 2 pcs)
</td><td>


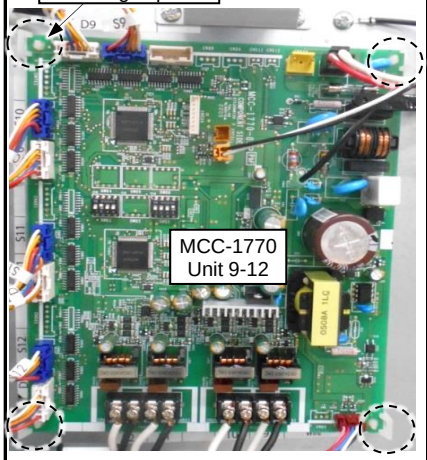

(ex. RBM-Y1801FU4PE)


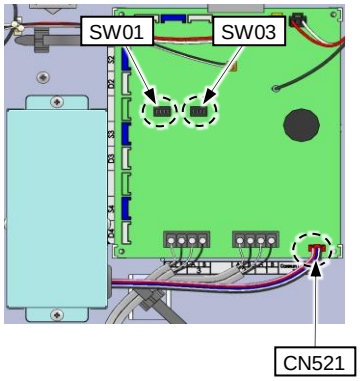
</td></tr>
<tr><td>2</td><td>P.C.board (MCC-1770)</td><td>
1. Detachment
1) Perform work of procedure 1-1 Detachment. (Electrical control box cover)
2) Remove connectors which are connected from the control P.C.board to the other parts.

Unit 1-4 (*FU4PE) / (*FU8PE) / (*FU12PE)
CN04: Earth wire (Faston tab)
CN67: Power supply wires (Black)
CN200: Communication wire (Terminal block)
CN309: Power supply wires (Yellow)
CN400: Communication wire (Terminal block)
CN521: Battery kit wire (Red)
CN581: Communication wire (Yellow)
CN601: PMV-L (White)
CN602: PMV-S1 (Blue)
CN603: PMV-D1 (White)
CN702: PMV-S2 (Blue)
CN703: PMV-D2 (White)
CN802: PMV-S3 (Blue)
CN803: PMV-D3 (White)
CN902: PMV-S4 (Blue)
CN903: PMV-D4 (White)
</td><td>


(ex. RBM-Y1801FU12PE)


</td></tr>
</table>

No.	Part	Work procedure	Remarks
		Unit 5-8 (*FU8PE) / (*FU12PE) CN04: Earth wire (Faston tab) CN67: Power supply wires (Black) CN200: Communication wire (Terminal block) CN309: Power supply wires (Yellow) CN400: Communication wire (Terminal block) CN521: Battery kit wire (Red) CN580: Communication wire (Yellow) CN581: Communication wire (Yellow) CN602: PMV-S5 (Blue) CN603: PMV-D5 (White) CN702: PMV-S6 (Blue) CN703: PMV-D6 (White) CN802: PMV-S7 (Blue) CN803: PMV-D7 (White) CN902: PMV-S8 (Blue) CN903: PMV-D8 (White) Unit 9-12 (*FU12PE) CN04: Earth wire (Faston tab) CN67: Power supply wires (Black) CN200: Communication wire (Terminal block) CN400: Communication wire (Terminal block) CN521: Battery kit wire (Red) CN580: Communication wire (Yellow) CN602: PMV-S9 (Blue) CN603: PMV-D9 (White) CN702: PMV-S10 (Blue) CN703: PMV-D10 (White) CN802: PMV-S11 (Blue) CN803: PMV-D11 (White) CN902: PMV-S12 (Blue) CN903: PMV-D12 (White) 3) Unlock the locks of the card edge spacer (4 places) and then remove the control P.C.board.	Card edge spacer  Card edge spacer 

No.	Part	Work procedure	Remarks
		2 Attachment 1) Fix the control P.C. board to the card edge spacers. (4 places) 2) Connect the connectors disconnected in item 1-2) as before. For connectors, check there is no missing or contact failure. 3) DIP switch SW01 and SW03 should be set according to the table below. Settings vary depending on the control unit number and whether or not the Battery kit is connected to CN521.	

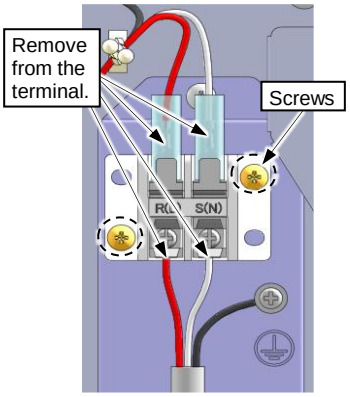
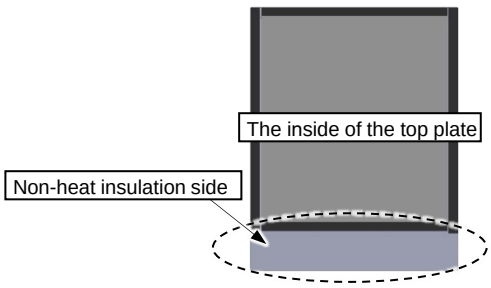
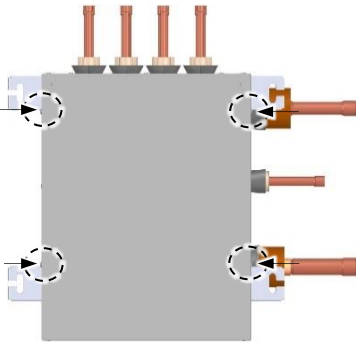
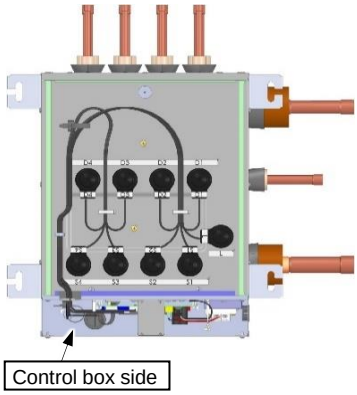
▼If the Battery kit (CN521) is not connected. (Factory setting)

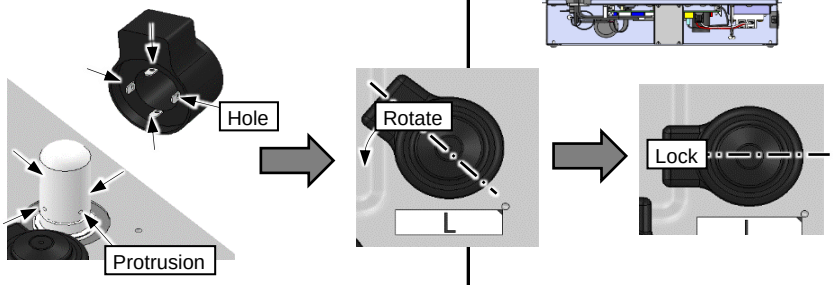
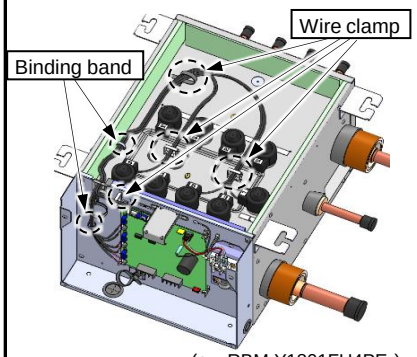
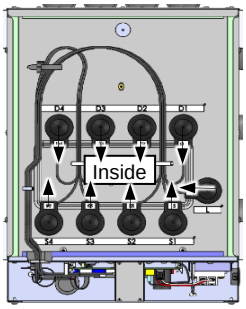
P.C. board	Setting of SW01	Setting of SW03
Unit 1-4	SW01 ON OFF 1 2 3 4	SW03 ON OFF 1 2 3 4
Unit 4-8	SW01 ON OFF 1 2 3 4	SW03 ON OFF 1 2 3 4
Unit 9-12	SW01 ON OFF 1 2 3 4	SW03 ON OFF 1 2 3 4

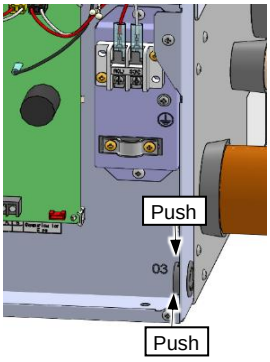
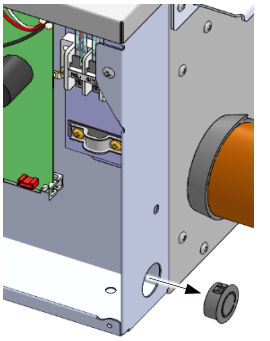
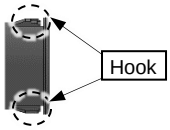
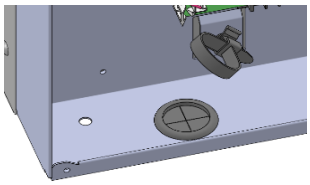
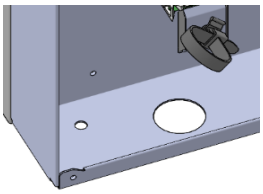
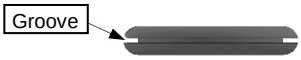
▼If the Battery kit (CN521) is connected.

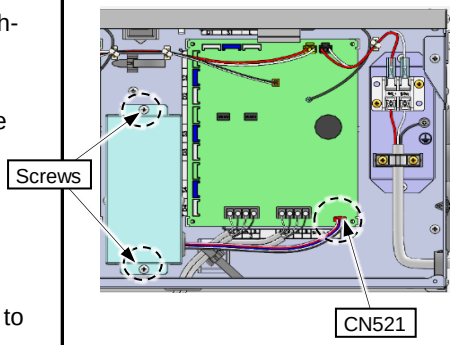
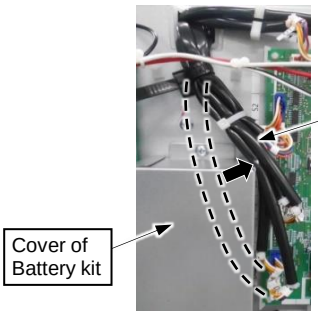
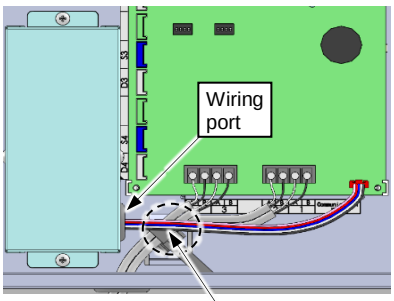
P.C. board	Setting of SW01	Setting of SW03
Unit 1-4	SW01 ON OFF 1 2 3 4	SW03 ON OFF 1 2 3 4
Unit 4-8	SW01 ON OFF 1 2 3 4	SW03 ON OFF 1 2 3 4
Unit 9-12	SW01 ON OFF 1 2 3 4	SW03 ON OFF 1 2 3 4

4) Attach the electrical control box cover.
(Refer to 1. of 2 Attachment)

No.	Part	Work procedure	Remarks
3	Terminal	**1. Detachment** 1) Perform work of procedure 1-1 Detachment. (Electrical control box cover) 2) Remove the wires from the terminal. 3) Remove the screws fixing the terminal. (M4 x 14, 2 pcs) **2 Attachment** 1) Fix the terminal with screws as before. (M4 x 14, 2 pcs) 2) Connect the wires disconnected as before. 3) Attach the electrical control box cover. (Refer to 1. of 2 Attachment)	
4	Top plate	**1. Detachment** 1) Remove the fixing screws (M4 x 8, 4 pcs) 2) Remove the top plate. **2 Attachment** 1) Fix the Top plate with the screws as before. (M4 x 8, 4 pcs.) Fit the non-heat insulation material side to the control box side. Work carefully so as not to pinch the wires inside the unit. 	 (ex. RBM-Y1801FU4PE) 

No.	Part	Work procedure	Remarks
5	Coil-PMV	**1. Detachment** 1) Perform work of procedure 1. -1) (Electrical control box cover) and 4. -1) (Top plate). 2) Cut the binding band as appropriate and remove the PMV wire from the wire clamp. 3) Disconnect the PMV wire connector from the control P.C. board. 4) Remove the Coil-PMV. **2 Attachment** 1) Fix the Coil-PMV assembly as before. Rotate the Coil-PMV to lock the Body-PMV by mating the protrusions of the Body-PMV with the holes in the Coil-PMV. When performing this task, the Coil-PMV should have the wires facing inward.  2) Connect the wires disconnected as before. 3) Attach the binding band (locally procured) and wire clamps to the PMV wires as before. 4) Attach the electrical control box cover and the top plate. (Refer to 1. -2) and 4. -2))	 (ex. RBM-Y1801FU4PE) PMV wire direction 

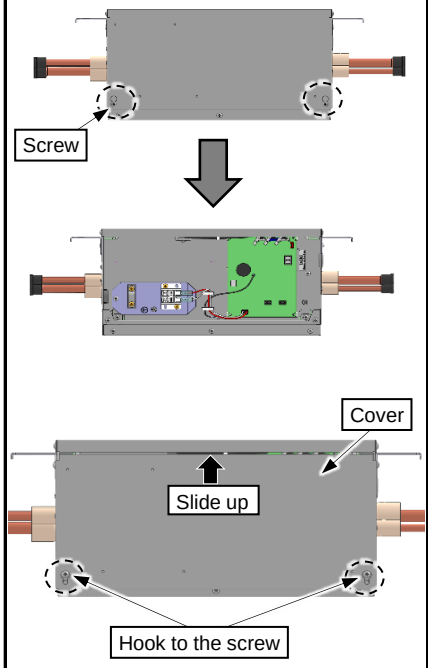
No.	Part	Work procedure	Remarks
6	BUSHING	**1. Detachment** 1) Perform work of procedure 1-1 Detachment. (Electrical control box cover) 2) Push 2 hooks and remove the bushing from the electrical control box.   **2 Attachment** 1) Attach the bushing to the electrical control box. Push the bushing to hook the hooks onto the steel plate certainly. 2) Attach the electrical control box cover. (Refer to 1. of 2 Attachment)	
7	BUSHING	**1. Detachment** 1) Perform work of procedure 1. of 1 Detachment. (Electrical control box cover) 2) Remove the bushing from the electrical control box.  **2 Attachment** 1) Attach the bushing to the electrical control box. Push the bushing to set its groove to steel sheet certainly. 2) Attach the electrical control box cover. (Refer to 1. of 2 Attachment)	 

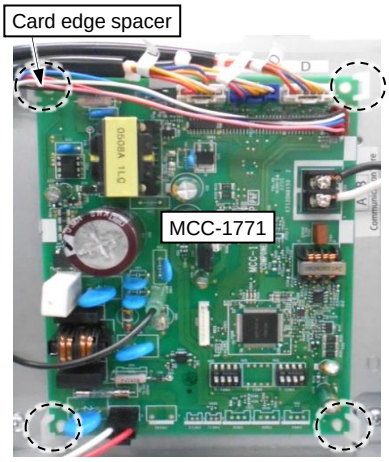
No.	Part	Work procedure	Remarks
8	Battery kit	**⚠WARNING** • Do not connect anything except TOSHIBA Battery kit. • This kit includes a nickel-metal hydride battery (NiMH). For your safety, please read instruction manual in Battery kit carefully and handle it with care. • Do not touch this kit for at least 1 minute after disconnecting power supply at servicing. **1. Detachment** 1) Perform work of procedure 1. of 1 Detachment. (Electrical control box cover) 2) Remove the wiring connector from the control P.C. board on the right side of the Battery kit. CN521: Battery kit wire (RED) 3) Remove the screws from the electrical control box. (M4 x 6, 2 pcs.) 4) Remove the Battery kit being careful not to contact the P.C. board. 5) Be sure to dispose of the removed Battery kit in accordance with 14-4.Disposal method for Battery kit. **2 Attachment** 1) Fix the Battery kit with screws as before. (M4 x 6, 2 pcs.) The Battery kit should be installed with the wiring port the lower right. Be careful not to pinch other wires with the sheet metal cover of the Battery kit. Therefore, move the PMV wire to the right. Be careful to avoid contact between the Battery kit and the P.C. board. 2) Connect the Battery kit wiring connector to the control P.C. board as before. Do not pull the wire too hard. The connector inside the Battery kit may come off. Do not bundle Battery kit wires together with communication wires with wire clamp or other means. 3) Attach the electrical control box cover. (Refer to 1. of 2 Attachment)	  

14-2. Flow Selector unit Single-port type including Battery kit

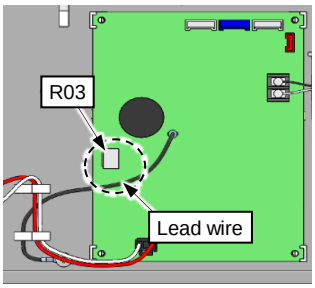
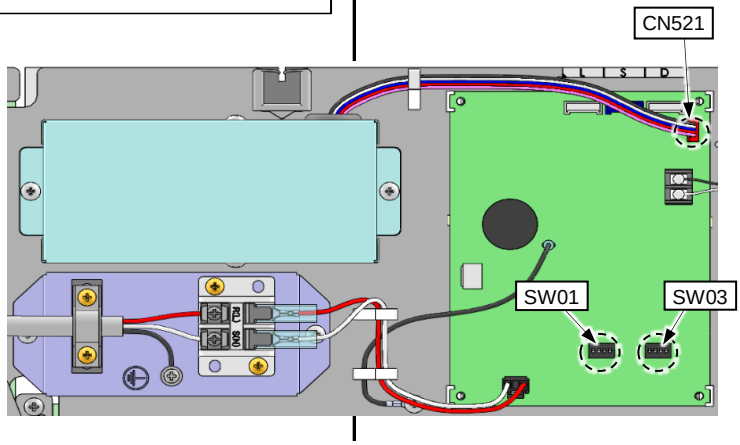
<table>
<tr><th>No.</th><th>Part</th><th>Work procedure</th><th>Remarks</th></tr>
<tr><td>1</td><td>Electrical control box cover</td><td>
⚠WARNING
・Wear a pair of gloves.
Otherwise, you will risk an injury involving a replacement part or some other object.
・Stop the power supply of the air conditioner and turn off switch of the power supply breaker.

1. Detachment
1) Loosen fixing screws. (M4 x 8, 2 pcs)
2) Pull the cover downward and then remove the cover.

2 Attachment
1) Hook the electrical control box cover on the screw on the upper side. (2 places)
2) Slide up the cover and fit it in.
Work carefully so as not to pinch the wires inside the box.
3) Tighten the screws. (M4 x 8, 2 pcs)
</td><td>


</td></tr>
<tr><td>2</td><td>P.C.board (MCC-1771)</td><td>
1) Perform work of procedure 1-1 Detachment. (Electrical control box cover)
2) Remove connectors which are connected from the control P.C.board to the other parts.
CN04: Earth wire (Faston tab)
CN67: Power supply wires (Black)
CN200: Communication wire (Terminal block)
CN521: Battery kit wire (Red)
CN581: Communication wire (Yellow)
CN601: PMV-L (White)
CN602: PMV-S (Blue)
CN603: PMV-D (White)
3) Unlock the locks of the card edge spacer (4 places) and then remove the control P.C.board.
</td><td>


</td></tr>
</table>

No.	Part	Work procedure	Remarks
		2 Attachment 1) Fix the control P.C. board to the card edge spacers. (4 places) 2) Connect the connectors disconnected in item 1-2) as before. For connectors, check there is no missing or contact failure. The lead wire should be wired so as not to touch the cement resistance R03. 3) DIP switch SW01 and SW03 should be set according to the table below. Settings vary depending on the model and whether or not the Battery kit is connected to CN521.	 

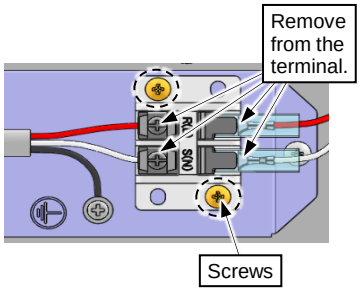
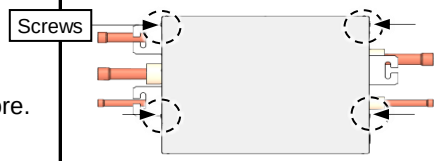
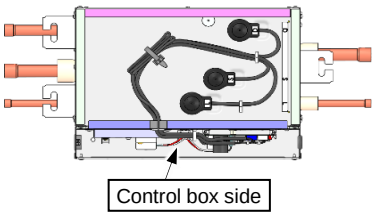
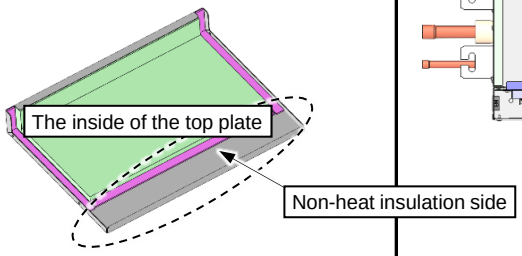
▼If the Battery kit (CN521) is not connected. (Factory setting)

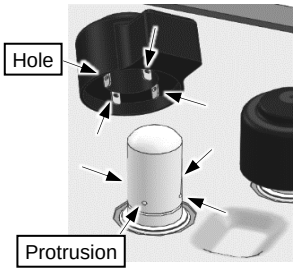
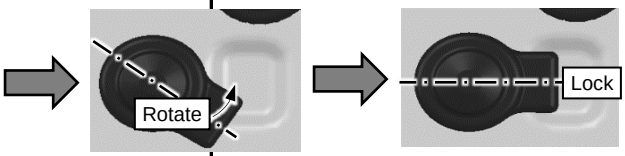
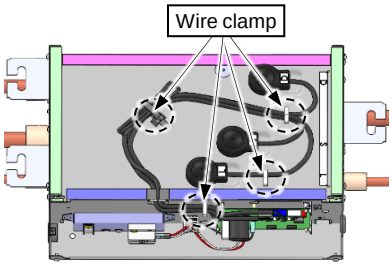
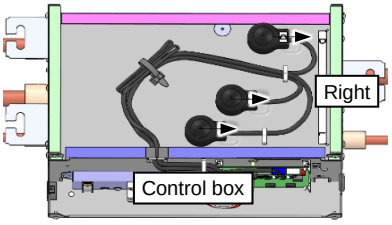
RBM-***	Setting of SW01	Setting of SW03
Y1121FUPE	SW01 ON OFF 1 2 3 4	SW03 ON OFF 1 2 3 4
Y1801FUPE	SW01 ON OFF 1 2 3 4	SW03 ON OFF 1 2 3 4
Y2801FUPE	SW01 ON OFF 1 2 3 4	SW03 ON OFF 1 2 3 4

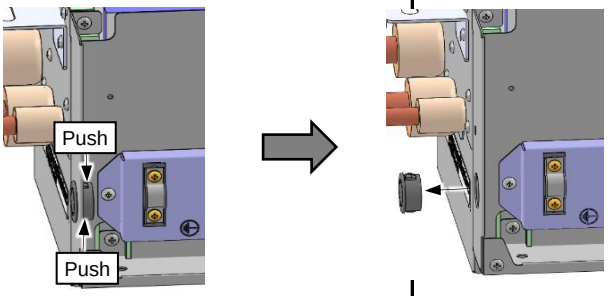
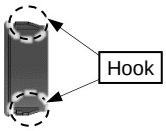
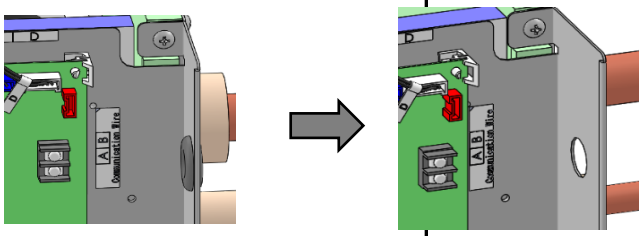
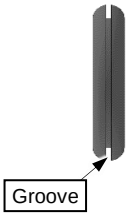
▼If the Battery kit (CN521) is connected.

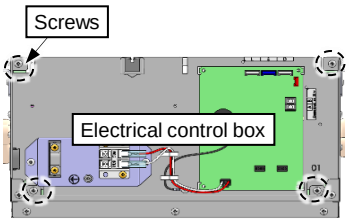
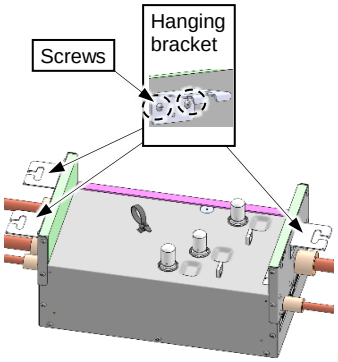
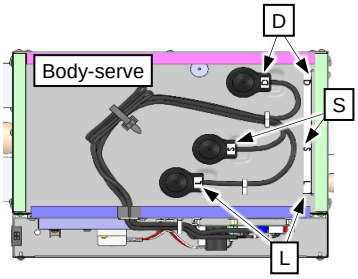
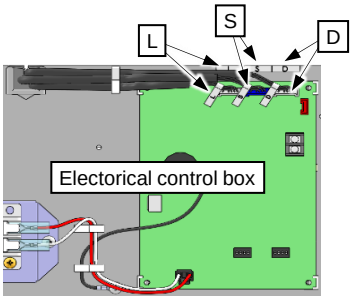
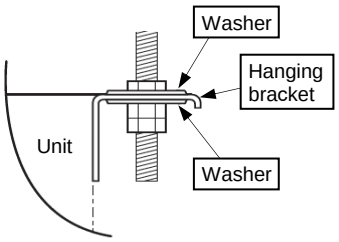
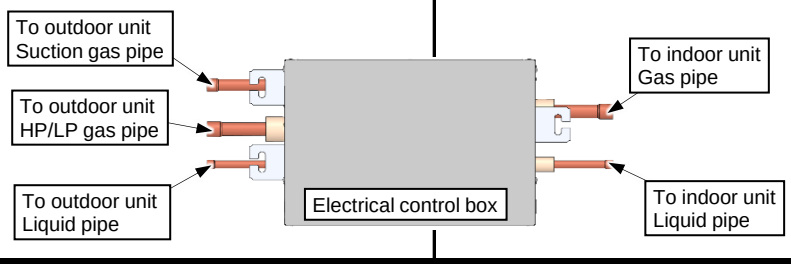
RBM-***	Setting of SW01	Setting of SW03
Y1121FUPE	SW01 ON OFF 1 2 3 4	SW03 ON OFF 1 2 3 4
Y1801FUPE	SW01 ON OFF 1 2 3 4	SW03 ON OFF 1 2 3 4
Y2801FUPE	SW01 ON OFF 1 2 3 4	SW03 ON OFF 1 2 3 4

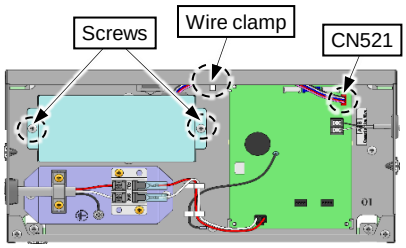
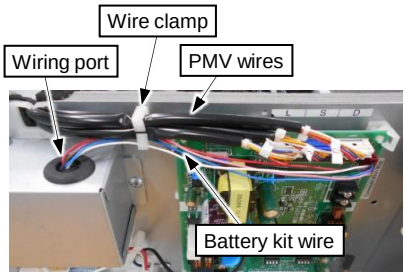
4) Attach the electrical control box cover. (Refer to 1. of 2 Attachment)

No.	Part	Work procedure	Remarks
3	Terminal	**1. Detachment** 1) Perform work of procedure 1-1 Detachment. (Electrical control box cover) 2) Remove the wires from the terminal. 3) Remove the screws fixing the terminal. (M4 x 14, 2 pcs) **2 Attachment** 1) Fix the terminal with screws as before. (M4 x 14, 2 pcs) 2) Connect the wires disconnected as before. 3) Attach the electrical control box cover. (Refer to 1. of 2 Attachment)	
4	Top plate	**1. Detachment** 1) Remove the fixing screws (M4 x 8, 4 pcs) 2) Remove the top plate. **2 Attachment** 1) Fix the Top plate with the screws as before. (M4 x 8, 4 pcs.) Fit the non-heat insulation material side to the control box side. Work carefully so as not to pinch the wires inside the unit.	  

No.	Part	Work procedure	Remarks
5	Coil-PMV	**1. Detachment** 1) Perform work of procedure 1. -1) (Electrical control box cover) and 4. -1) (Top plate). 2) Remove the PMV wire from the wire clamp as appropriate. 3) Disconnect the PMV wire connector from the control P.C. board. 4) Remove the Coil-PMV. **2 Attachment** 1) Fix the Coil-PMV assembly as before. Rotate the Coil-PMV to lock the Body-PMV by mating the protrusions of the Body-PMV with the holes in the Coil-PMV. When performing this task, the Coil-PMV wires should be oriented to the right as viewed from the control box.   2) Connect the wires disconnected as before. 3) Attach wire clamps to the PMV wires as before. 4) Attach the electrical control box cover and the top plate. (Refer to 1. -2) and 4. -2))	 PMV wire direction 

No.	Part	Work procedure	Remarks
6	BUSHING	**1. Detachment** 1) Perform work of procedure 1-1 Detachment. (Electrical control box cover) 2) Push 2 hooks and remove the bushing from the electrical control box.  **2 Attachment** 1) Attach the bushing to the electrical control box. Push the bushing to hook the hooks onto the steel plate certainly. 2) Attach the electrical control box cover. (Refer to 1. of 2 Attachment)	
7	BUSHING	**1. Detachment** 1) Perform work of procedure 1. of 1 Detachment. (Electrical control box cover) 2) Remove the bushing from the electrical control box.  **2 Attachment** 1) Attach the bushing to the electrical control box. Push the bushing to set its groove to steel sheet certainly. 2) Attach the electrical control box cover. (Refer to 1. of 2 Attachment)	

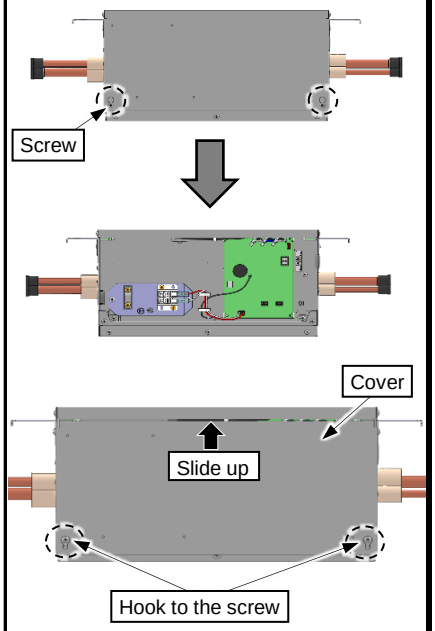
No.	Part	Work procedure	Remarks
8	BODY-SERVE	Before the work, be sure to recover the refrigerant of outdoor unit into cylinders or another unit connected to the same system. (Refer to the chapter "Refrigerant Recovery Method" for the outdoor unit. **1. Detachment** 1) Remove connecting pipes from the Flow Selector unit 2) Remove the Flow Selector unit from three hanging-bolts. 3) Perform work of procedure 5. of 1 Detachment. (Coil-PMV: L, S, D) 4) Remove screws of the electrical control box. (M4 x 8, 4 pcs) 5) Remove screws of the three hanging brackets. (M4 x 8, 6 pcs) **2 Attachment** 1) Attach the three hanging brackets with the screws. (M4 x 8, 6 pcs) 2) Attach the electrical control box with the screws. (M4 x 8, 4 pcs) 3) Perform work of procedure 5. of 2 Attachment. (Coil-PMV: L, S, D) Attach Coil-PMV according to the coil nameplate on the Body-serve. Connect the Coil-PMV wire connectors to the control P.C. board according to the coil nameplate on the electrical control box. 4) Hang the Flow Selector unit by fixing three hanging brackets with washers. Put washers at up and down of the three hanging brackets to hang down the Flow Selector unit. Check that four sides are horizontal with a level gauge. (Horizontal degree: Within 5 mm) 5) Connect and braze the connecting pipe as before.	     

No.	Part	Work procedure	Remarks
9	Battery kit	**⚠WARNING** • Do not connect anything except TOSHIBA Battery kit. • This kit includes a nickel-metal hydride battery (NiMH). For your safety, please read instruction manual in Battery kit carefully and handle it with care. • Do not touch this kit for at least 1 minute after disconnecting power supply at servicing. **1. Detachment** 1) Perform work of procedure 1. of 1 Detachment. (Electrical control box cover) 2) Remove the wiring connector from the control P.C. board. CN521: Battery kit wire (RED) 3) Remove the Battery kit wire from the wire clamp. 4) Remove the screws from the electrical control box. (M4 x 6, 2 pcs.) 5) Remove the Battery kit being careful not to contact the P.C. board. 6) Be sure to dispose of the removed Battery kit in accordance with 14-4.Disposal method for Battery kit. **2 Attachment** 1) Fix the Battery kit with screws as before. (M4 x 6, 2 pcs.) The Battery kit should be installed so that the wiring port is at the upper right. Be careful not to pinch other wires with the sheet metal cover of the Battery kit. Be careful to avoid contact between the Battery kit and the P.C. board. 2) Connect the Battery kit wiring connector to the control P.C. board as before. Do not pull the wire too hard. The connector inside the Battery kit may come off. 3) Attach the Battery kit wire to the wire clamp as before. The Battery kit wire should be as far below the PMV wires as possible. 3) Attach the electrical control box cover. (Refer to 1. of 2 Attachment)	 

14-3. Shut-off Valve unit including Battery kit

<table>
<tr><th>No.</th><th>Part</th><th>Work procedure</th><th>Remarks</th></tr>
<tr><td>1</td><td>Electrical control box cover</td><td>
⚠WARNING
・Wear a pair of gloves.
Otherwise, you will risk an injury involving a replacement part or some other object.
・Stop the power supply of the air conditioner and turn off switch of the power supply breaker.

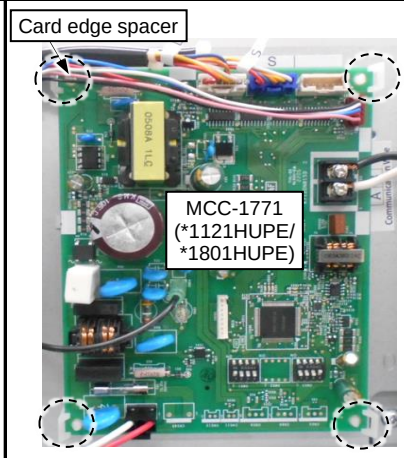
1. Detachment
1) Loosen fixing screws. (M4 x 8, 2 pcs)
2) Pull the cover downward and then remove the cover.

2 Attachment
1) Hook the electrical control box cover on the screw on the upper side. (2 places)
2) Slide up the cover and fit it in.
Work carefully so as not to pinch the wires inside the box.
3) Tighten the screws. (M4 x 8, 2 pcs)
</td><td>


</td></tr>
<tr><td>2</td><td>P.C.board (MCC-1771)</td><td>
1) Perform work of procedure 1-1 Detachment. (Electrical control box cover)
2) Remove connectors which are connected from the control P.C.board to the other parts.

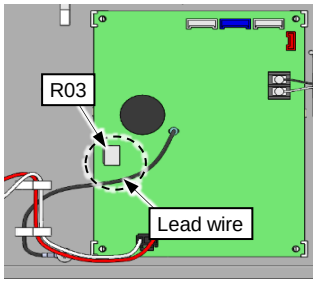
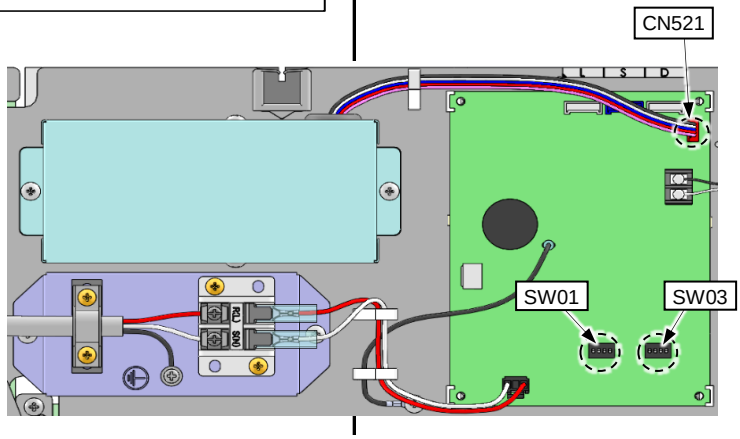
<u>For RBM-SV1121HUPE, RBM-SV1801HUPE</u>
CN04: Earth wire (Faston tab)
CN67: Power supply wires (Black)
CN200: Communication wire (Terminal block)
CN521: Battery kit wire (Red)
CN581: Communication wire (Yellow)
CN601: PMV-L (White)
CN602: PMV-S (Blue)

<u>For RBM-SV6701HUPE</u>
CN04: Earth wire (Faston tab)
CN67: Power supply wires (Black)
CN200: Communication wire (Terminal block)
CN521: Battery kit wire (Red)
CN581: Communication wire (Yellow)
CN601: PMV-L (White)
CN602: PMV-S1 (White)
CN603: PMV-S2 (White)

3) Unlock the locks of the card edge spacer (4 places) and then remove the control P.C.board.
</td><td>




</td></tr>
</table>

No.	Part	Work procedure	Remarks
		2 Attachment 1) Fix the control P.C. board to the card edge spacers. (4 places) 2) Connect the connectors disconnected in item 1-2) as before. For connectors, check there is no missing or contact failure. The lead wire should be wired so as not to touch the cement resistance R03. 3) DIP switch SW01 and SW03 should be set according to the table below. Settings vary depending on the model and whether or not the Battery kit is connected to CN521.	 

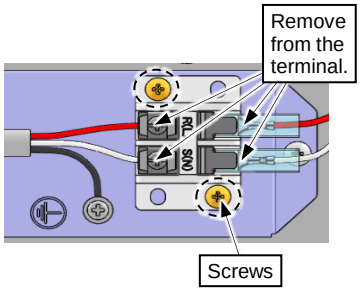
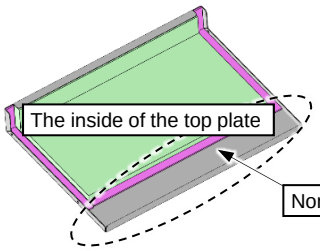
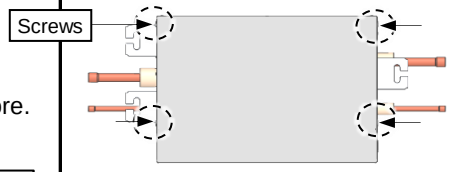
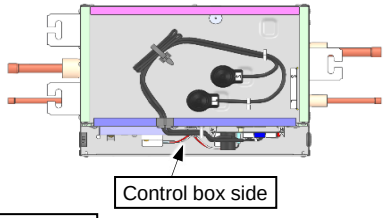
▼If the Battery kit (CN521) is not connected. (Factory setting)

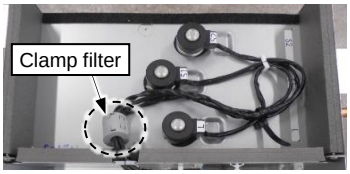
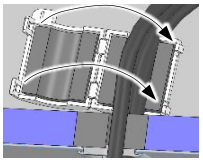
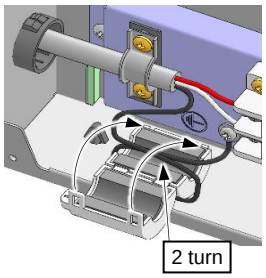
RBM-***	Setting of SW01	Setting of SW03
SV1121HUPE	SW01 ON OFF 1 2 3 4	SW03 ON OFF 1 2 3 4
SV1801HUPE	SW01 ON OFF 1 2 3 4	SW03 ON OFF 1 2 3 4
SV6701HUPE	SW01 ON OFF 1 2 3 4	SW03 ON OFF 1 2 3 4

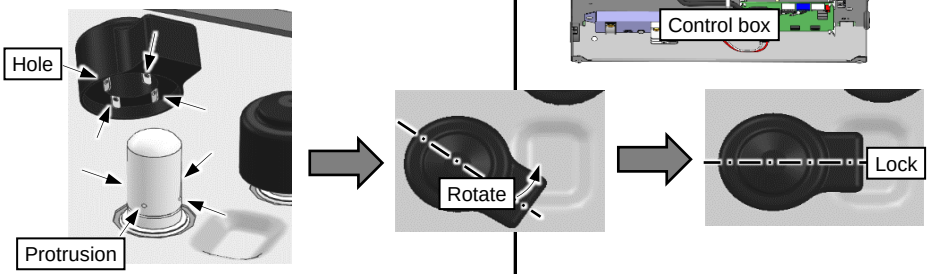
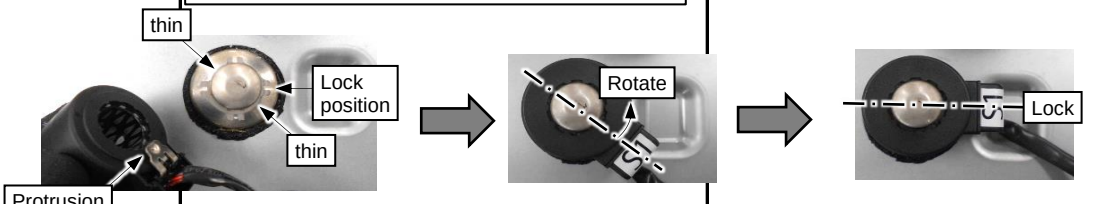
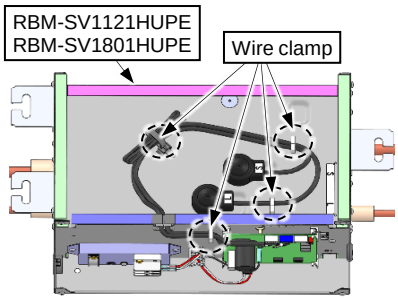
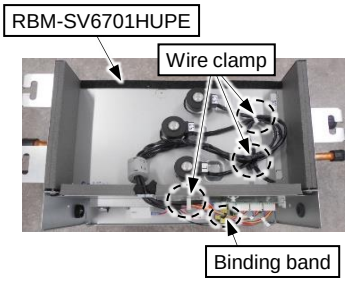
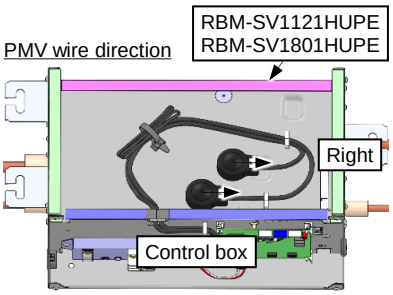
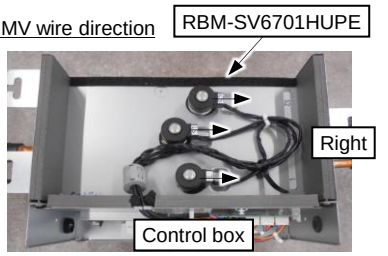
▼If the Battery kit (CN521) is connected.

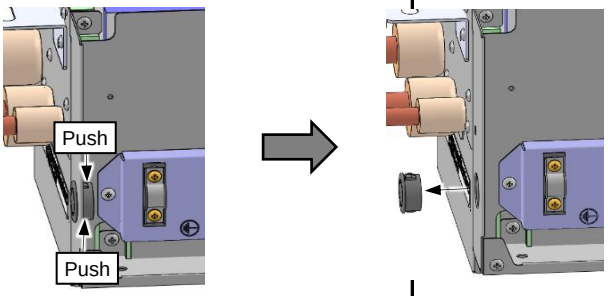
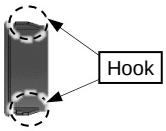
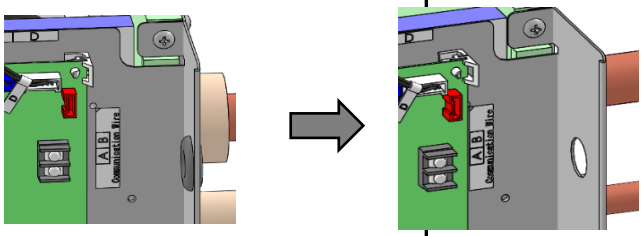
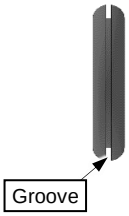
RBM-***	Setting of SW01	Setting of SW03
SV1121HUPE	SW01 ON OFF 1 2 3 4	SW03 ON OFF 1 2 3 4
SV1801HUPE	SW01 ON OFF 1 2 3 4	SW03 ON OFF 1 2 3 4
SV6701HUPE	SW01 ON OFF 1 2 3 4	SW03 ON OFF 1 2 3 4

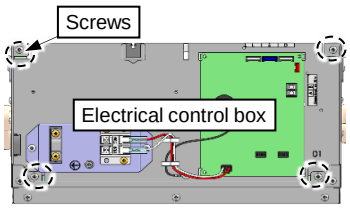
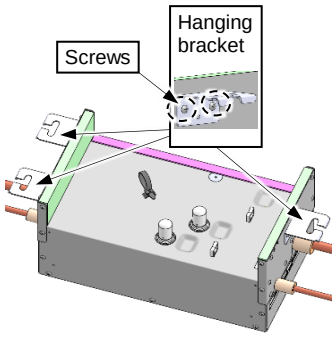
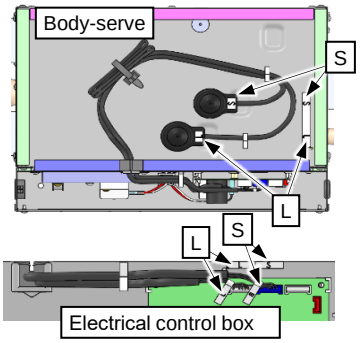
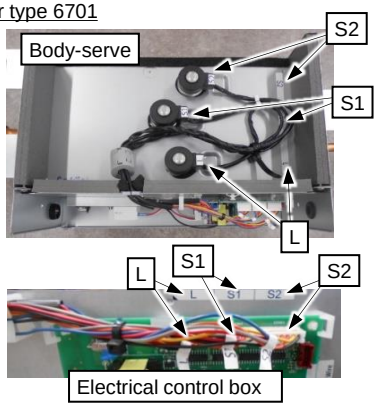
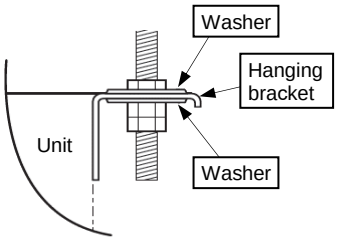
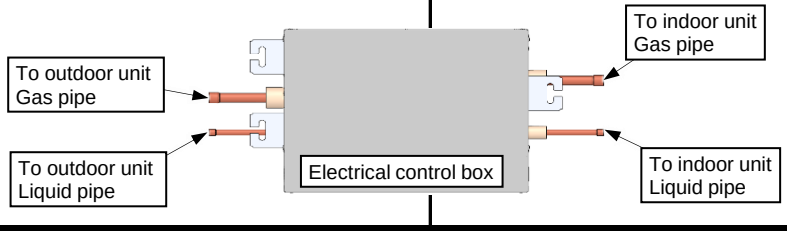
4) Attach the electrical control box cover.
(Refer to 1. of 2 Attachment)

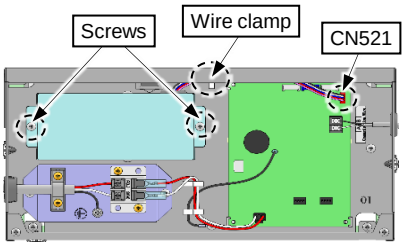
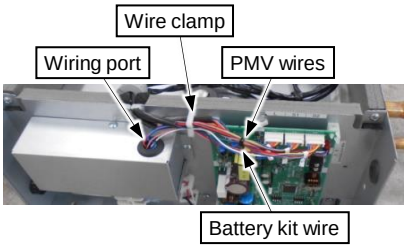
No.	Part	Work procedure	Remarks
3	Terminal	**1. Detachment** 1) Perform work of procedure 1-1 Detachment. (Electrical control box cover) 2) Remove the wires from the terminal. 3) Remove the screws fixing the terminal. (M4 x 14, 2 pcs) **2 Attachment** 1) Fix the terminal with screws as before. (M4 x 14, 2 pcs) 2) Connect the wires disconnected as before. 3) Attach the electrical control box cover. (Refer to 1. of 2 Attachment)	
4	Top plate	**1. Detachment** 1) Remove the fixing screws (M4 x 8, 4 pcs) 2) Remove the top plate. **2 Attachment** 1) Fix the Top plate with the screws as before. (M4 x 8, 4 pcs.) Fit the non-heat insulation material side to the control box side. Work carefully so as not to pinch the wires inside the unit. 	 (ex. RBM-SV1801HUPE) 

No.	Part	Work procedure	Remarks
5	Clamp filter for PMV wires (ZCAT3035-1330)	**1. Detachment** 1) Perform work of procedure 4-1 Detachment. (Top plate) 2) Remove the clamp filter from the PMV wires. **2 Attachment** 1) Attach the clamp filter to the three PMV wires that have been put together. To prevent the clamp filter from opening, securely fit the two claws on it. 2) Attach the top plate. (Refer to 4. of 2 Attachment)	 
5	Clamp filter for earth wire (ZCAT3035-1330)	**1. Detachment** 1) Perform work of procedure 1-1 Detachment. (Electrical control box cover) 2) Remove the clamp filter from the earth wire. **2 Attachment** 1) Make two turn on the earth wire and attach the clamp filter to it. To prevent the clamp filter from opening, securely fit the two claws on it. 2) Attach the electrical control box cover. (Refer to 1. of 2 Attachment)	 

No.	Part	Work procedure	Remarks
6	Coil-PMV	**1. Detachment** 1) Perform work of procedure 1. -1) (Electrical control box cover) and 4. -1) (Top plate). 2) Remove the PMV wire from the wire clamp as appropriate. For RBM-SV6701HUPE Remove the clamp filter attached to the PMV wire. (Refer to 5. -1 Detachment) Cut the binding band that bind the PMV wires together. 3) Disconnect the PMV wire connector from the control P.C. board. 4) Remove the Coil-PMV. **2 Attachment** 1) Fix the Coil-PMV assembly as before. For RBM-SV1121HUPE, RBM-SV1801HUPE Rotate the Coil-PMV to lock the Body-PMV by mating the protrusions of the Body-PMV with the holes in the Coil-PMV. When performing this task, the Coil-PMV wires should be oriented to the right as viewed from the control box.  For RBM-SV6701HUPE Attach the Coil-PMV on the PMV valve by aligning the protrusion of the Coil-PMV with the thin part of the coil folder. Rotate the coil to the locked position to fix it. When performing this task, the Coil-PMV wires should be oriented to the right as viewed from the control box.  2) Connect the wires disconnected as before. 3) Attach wire clamps to the PMV wires as before. For RBM-SV6701HUPE Remove the clamp filter attached to the PMV wire. (Refer to 5. -2 Attachment) Attach the binding band to PMV wires as before. 5) Attach the electrical control box cover and the top plate. (Refer to 1. -2) and 4. -2))	    

No.	Part	Work procedure	Remarks
7	BUSHING	**1. Detachment** 1) Perform work of procedure 1-1 Detachment. (Electrical control box cover) 2) Push 2 hooks and remove the bushing from the electrical control box.  **2 Attachment** 1) Attach the bushing to the electrical control box. Push the bushing to hook the hooks onto the steel plate certainly. 2) Attach the electrical control box cover. (Refer to 1. of 2 Attachment)	
8	BUSHING	**1. Detachment** 1) Perform work of procedure 1. of 1 Detachment. (Electrical control box cover) 2) Remove the bushing from the electrical control box.  **2 Attachment** 1) Attach the bushing to the electrical control box. Push the bushing to set its groove to steel sheet certainly. 2) Attach the electrical control box cover. (Refer to 1. of 2 Attachment)	

No.	Part	Work procedure	Remarks
9	BODY-SERVE	Before the work, be sure to recover the refrigerant of outdoor unit into cylinders or another unit connected to the same system. (Refer to the chapter "Refrigerant Recovery Method" for the outdoor unit. **1. Detachment** 1) Remove connecting pipes from the Flow Selector unit. 2) Remove the Flow Selector unit from three hanging-bolts. 3) Perform work of procedure 6. of 1 Detachment. (Coil-PMV for type 1121, 1801: L,S) (Coil-PMV for type 6701: L, S1, S2) 4) Remove screws of the electrical control box. (M4 x 8, 4 pcs) 5) Remove screws of the three hanging brackets. (M4 x 8, 6 pcs) **2 Attachment** 1) Attach the three hanging brackets with the screws. (M4 x 8, 6 pcs) 2) Attach the electrical control box with the screws. (M4 x 8, 4 pcs) 3) Perform work of procedure 6. of 2 Attachment. (Coil-PMV for type 1121, 1801: L, S) (Coil-PMV for type 6701: L, S1, S2) Attach Coil-PMV according to the coil nameplate on the Body-serve. Connect the Coil-PMV wire connectors to the control P.C. board according to the coil nameplate on the electrical control box. 4) Hang the Flow Selector unit by fixing three hanging brackets with washers. Put washers at up and down of the three hanging brackets to hang down the Flow Selector unit. Check that four sides are horizontal with a level gauge. (Horizontal degree: Within 5 mm) 5) Connect and braze the connecting pipe as before.	  For type 1121, 1801  For type 6701   

No.	Part	Work procedure	Remarks
10	Battery kit	**⚠WARNING** • Do not connect anything except TOSHIBA Battery kit. • This kit includes a nickel-metal hydride battery (NiMH). For your safety, please read instruction manual in Battery kit carefully and handle it with care. • Do not touch this kit for at least 1 minute after disconnecting power supply at servicing. **1. Detachment** 1) Perform work of procedure 1. of 1 Detachment. (Electrical control box cover) 2) Remove the wiring connector from the control P.C. board. CN521: Battery kit wire (RED) 3) Remove the Battery kit wire from the wire clamp. 4) Remove the screws from the electrical control box. (M4 x 6, 2 pcs.) 5) Remove the Battery kit being careful not to contact the P.C. board. 6) Be sure to dispose of the removed Battery kit in accordance with 14-4.Disposal method for Battery kit. **2 Attachment** 1) Fix the Battery kit with screws as before. (M4 x 6, 2 pcs.) The Battery kit should be installed so that the wiring port is at the upper right. Be careful not to pinch other wires with the sheet metal cover of the Battery kit. Be careful to avoid contact between the Battery kit and the P.C. board. 2) Connect the Battery kit wiring connector to the control P.C. board as before. Do not pull the wire too hard. The connector inside the Battery kit may come off. 3) Attach the Battery kit wire to the wire clamp as before. The Battery kit wire should be as far below the PMV wires as possible. 3) Attach the electrical control box cover. (Refer to 1. of 2 Attachment)	 

14-4. Disposal method for Battery kit

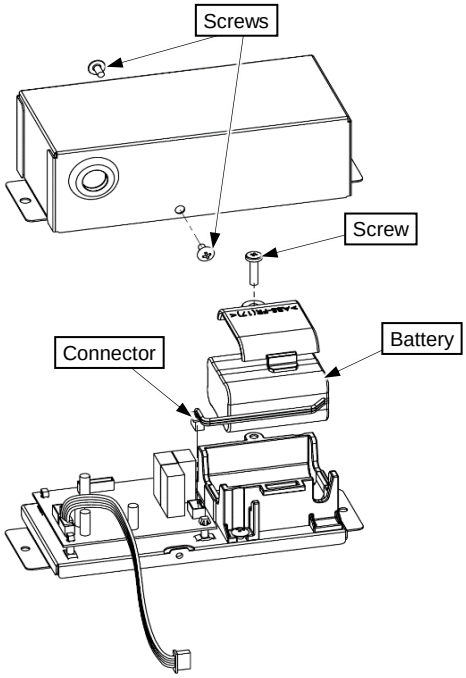
• Disassemble the nickel-metal hydride battery (NiMH) built into this product and dispose of it or recycle it in accordance with the laws and regulations of your country / region.
• When disposing of batteries, keep batteries of different electrochemical systems separate from each other.

⚠WARNING

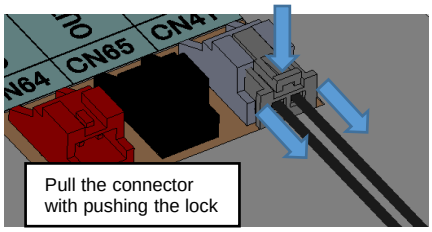
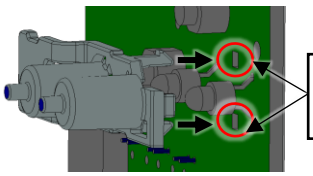
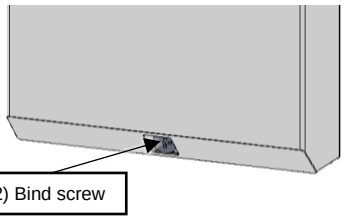
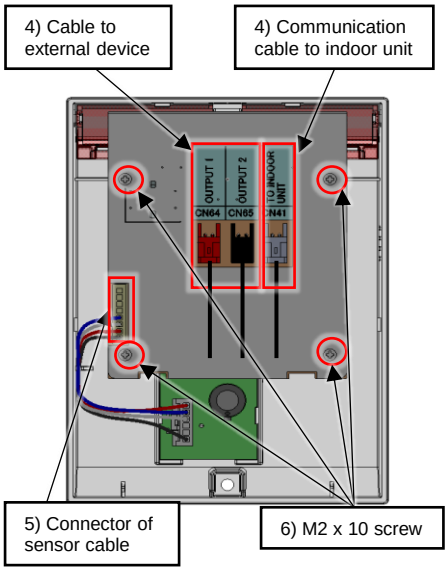
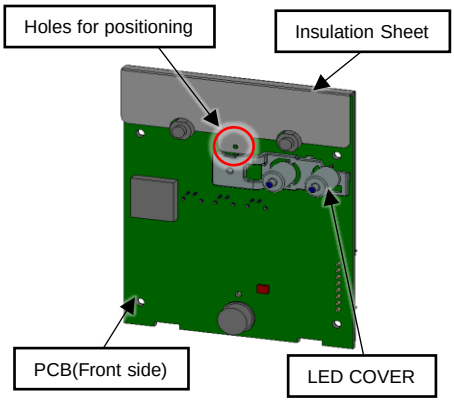
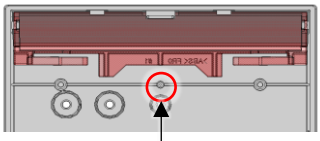
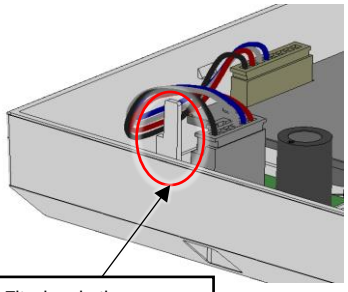
• This kit includes a nickel-metal hydride battery (NiMH). For your safety, please read Instruction Manual in Battery kit carefully and handle it with care.
• Wear a pair of gloves. Otherwise, you will risk an injury involving a replacement part.
• Do not use the removed battery for other equipment.
• Do not disassemble or modify the battery.
• Do not throw it into a fire or heat it. It may cause the battery to explode or catch fire.
• Do not leave it in direct sunlight, in a car under the scorching sun, in front of a stove, or in a hot place. It may cause battery leakage.
• Do not place anything on the Battery kit or place the Battery kit where it can easily fall. It may cause overheating, fire, or electric shock.
• Keep out of the reach of children. It may cause injury, battery leakage, heat generation, or explosion.
• Do not store outside the allowable temperature range.
• Do not replace the battery alone. In particular, never use different batteries. It may cause battery leakage, heat generation, or explosion.
• Do not give a strong impact or throw. It may cause injury, battery leakage, heat generation, or explosion .
• If leaked liquid gets into your eyes, rinse thoroughly with clean water without rubbing and seek medical attention immediately. It may cause blindness.
• If the alkaline solution leaked from the battery gets on your hands or clothes, immediately wash it off with clean water.

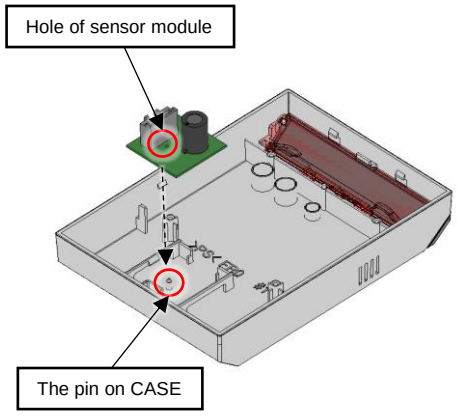
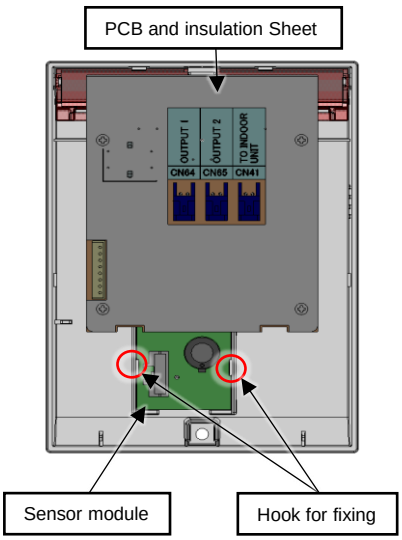
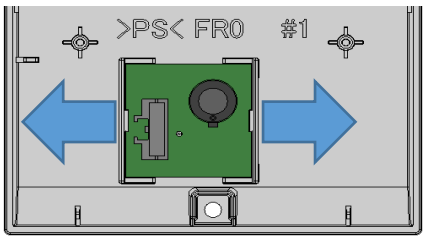
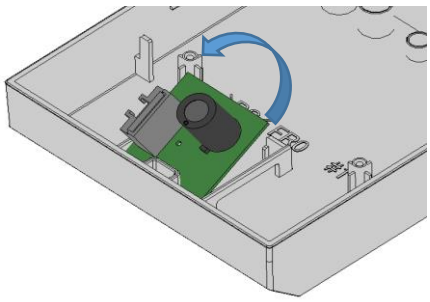
How to disassemble

1) Remove the screws for fixing the Battery kit sheet metal cover. (M4 x 6, 2 pcs)
2) Remove the fixing screw for resin parts. (M4 x12, 1 pc)
3) Disconnect the battery wiring connector from the P.C. board, the battery removal completed.



14-5. Leak Detector

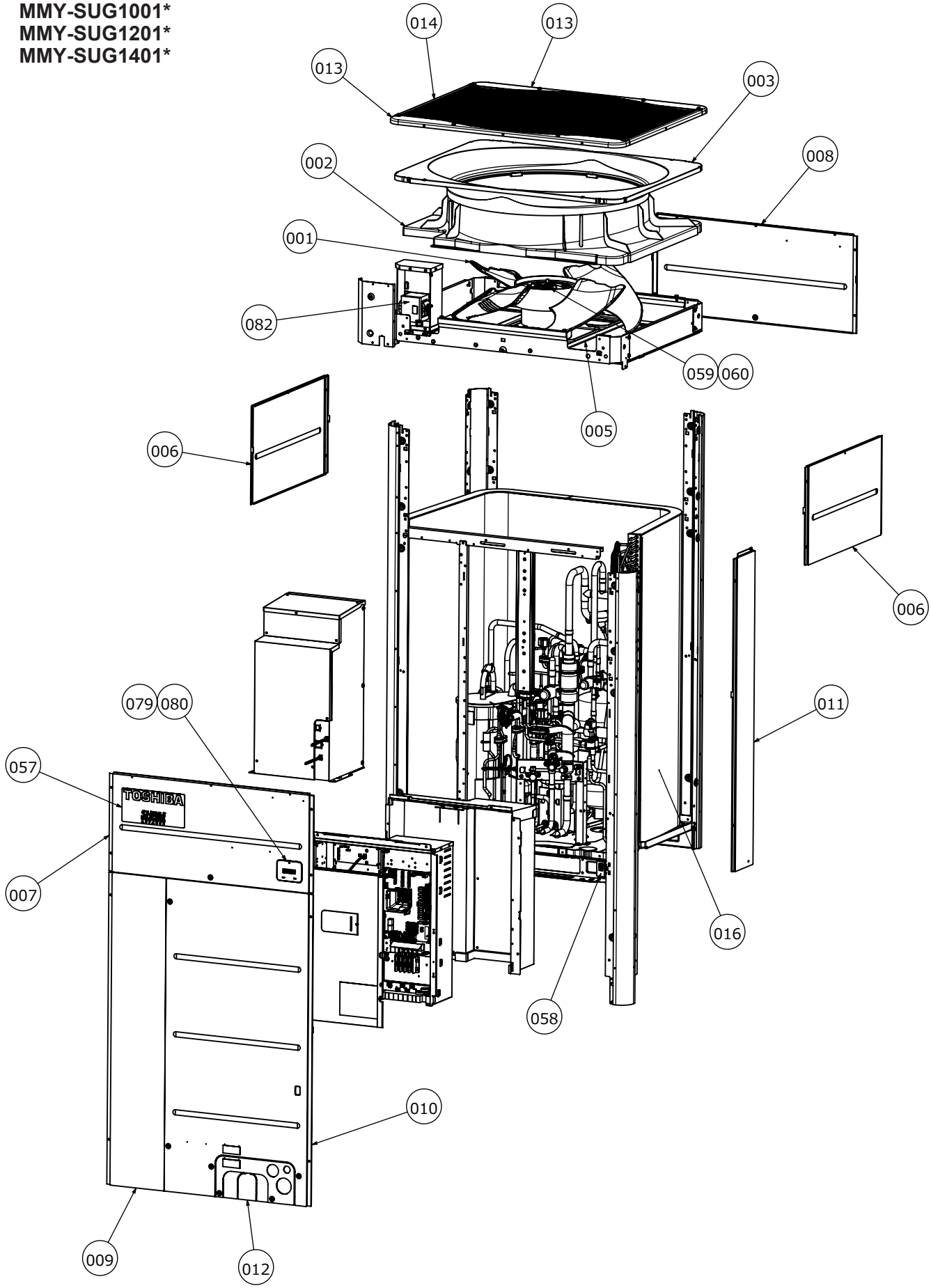
No.	Part	Work procedure	Remarks
1	Print Circuit Board (PCB)	**1.Detachment** 1) Stop the air conditioner operation, and turn off the circuit breaker to shut off the power supply. 2) Remove the bind screw which fix the CASE of the Leak Detector. (M3 x 8, 1 pcs) 3) Remove the CASE of the Leak Detector. 4) Detach the connector of communication cable from PCB. If any external device is connected to Output 1 or 2, detach them too. 5) Detach the connector of sensor cable from PCB. 6) Remove the screw from which fix PCB. (M2 x 10, 4 pcs) 7) Remove the PCB from CASE. 8) Remove the Insulation sheet from PCB. 9) Remove the LED COVER from PCB. Note.1 When detach the connector of communication cable or that of cable to external device, do not pull the cable directly. At first, take hold of connector housing with your two fingers. Then pull the connector with pushing the lock.  **2.Attachement** 1) Attach the LED COVER to PCB. Be sure to insert the hook of LED COVER to square hole of PCB.  2) Attach the PCB and Insulation sheet to CASE. Be sure to fit in the holes of PCB and Insulation sheet to pin of CASE. 3) Fix PCB with screws.(M2 x 10, 4 pcs) 4) Attach the connector of sensor cable to connector. After then, fit sensor cable wire in groove which is on side of CASE. 5) Carry out the installation by following reverse procedure in the Detachment 1) to 4).	    

No.	Part	Work procedure	Remarks
2	Sensor module	**1.Detachment** 1) Carry out the same procedure as Detachment 1) to 6) of PCB. 2) Remove the PCB. 3) Remove the Connector of sensor cable from sensor module. 4) Remove the sensor module from CASE. Note1. Do not remove the sensor module before detach the PCB. Otherwise it may cause the damage to sensor module or PCB. Note2. In each procedures, do not touch, damage, or dirty the top of sensor on module. It may cause detecting performance of sensor is decreased. Note3. When attach the sensor module, be careful at direction of sensor module. And be sure to fit hole of sensor module in the pin on CASE.  **2.Attachement** Carry out the installation by following reverse procedure in the Detachment 1) to 4).	 Way of detachment the sensor module 1.Widen the gap between two Hooks with two of your thumb being careful not to break the CASE.  2.With widening the gap, flip up the sensor module with index finger and remove module. 

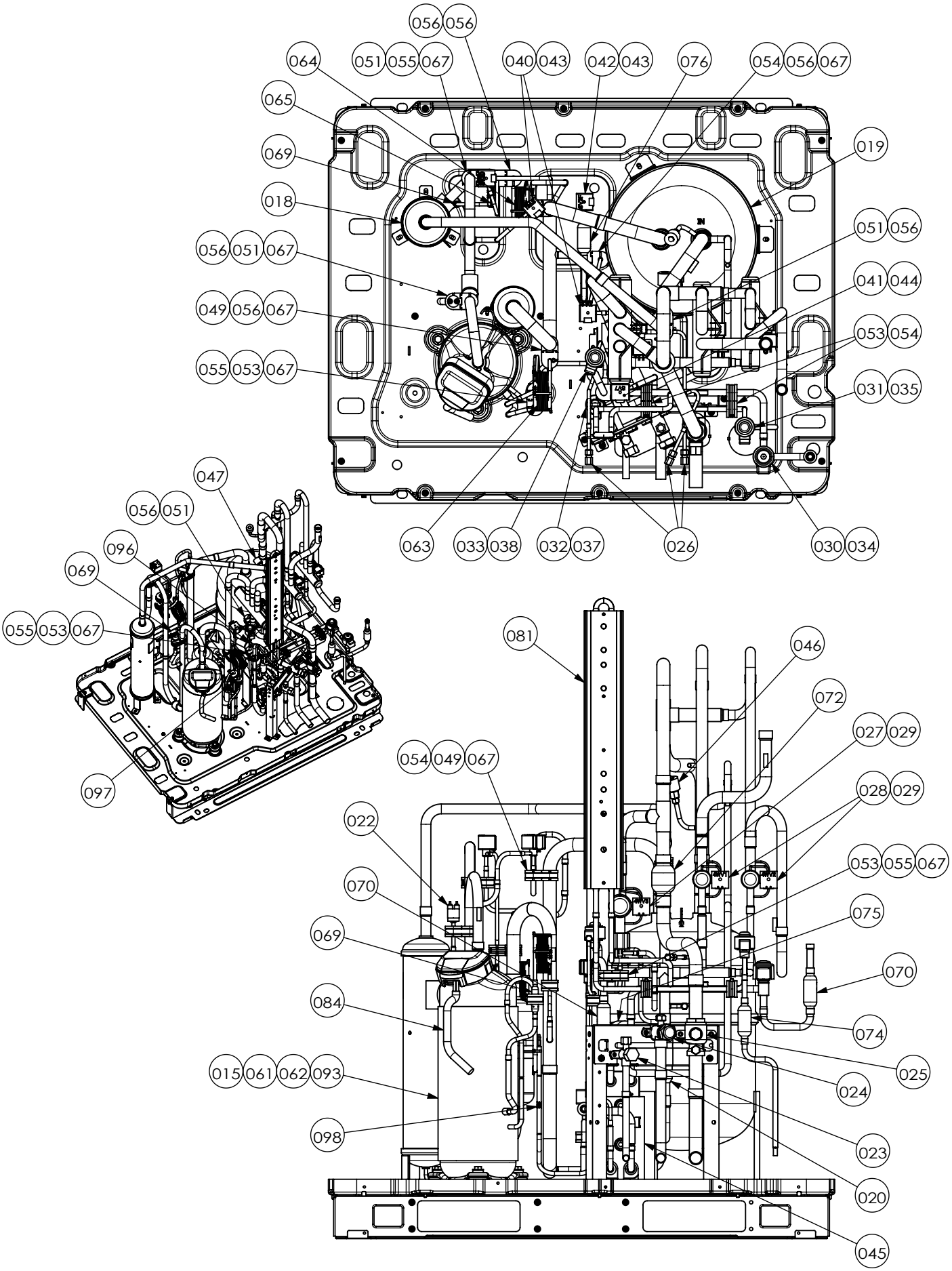
15. EXPLODED DIAGRAM/PARTS LIST

15-1. Outdoor unit (8, 10, 12, 14HP)

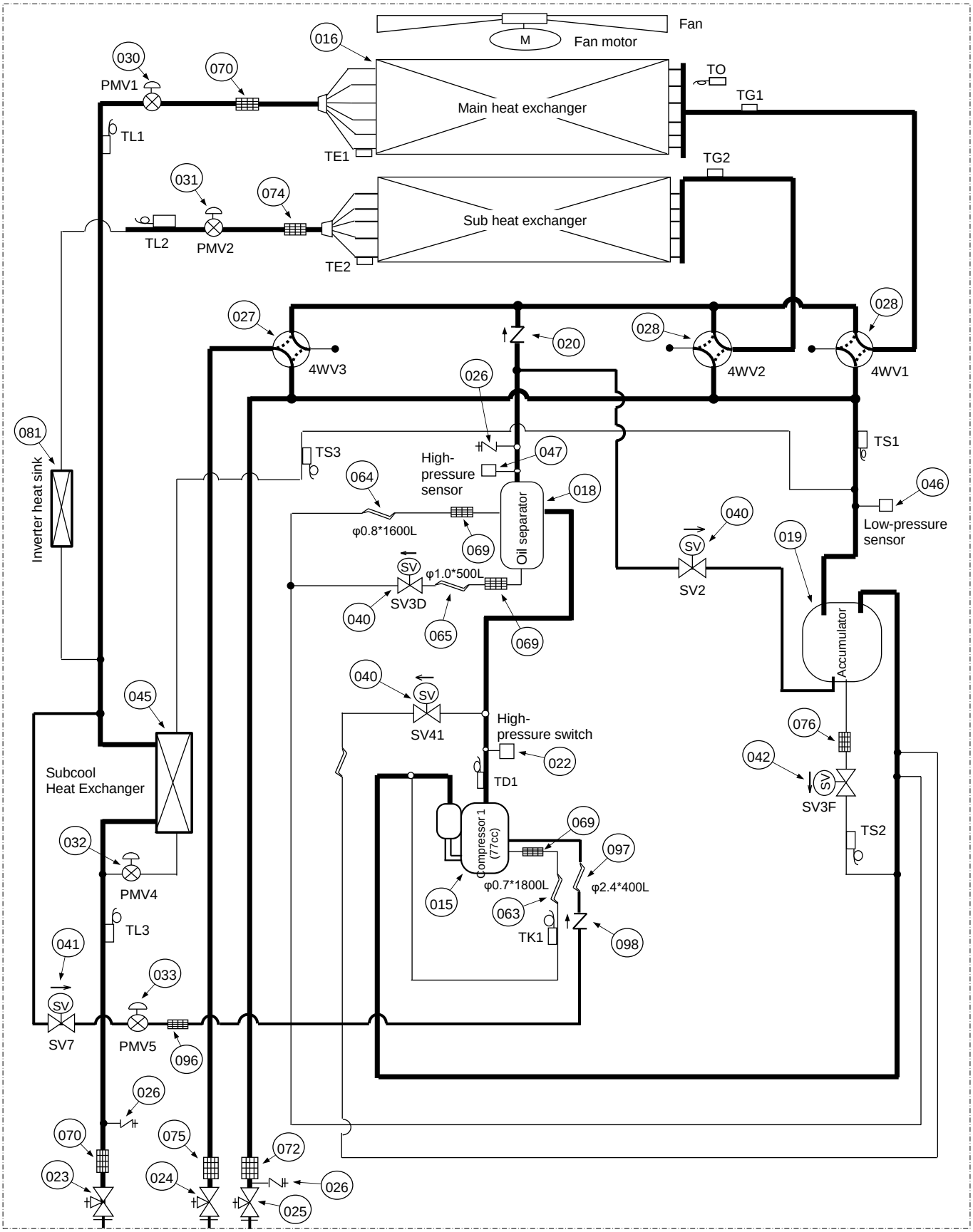
MMY-SUG0801*
MMY-SUG1001*
MMY-SUG1201*
MMY-SUG1401*



For MMY-SUG0801*, MMY-SUG1001*, MMY-SUG1201*, MMY-SUG1401*



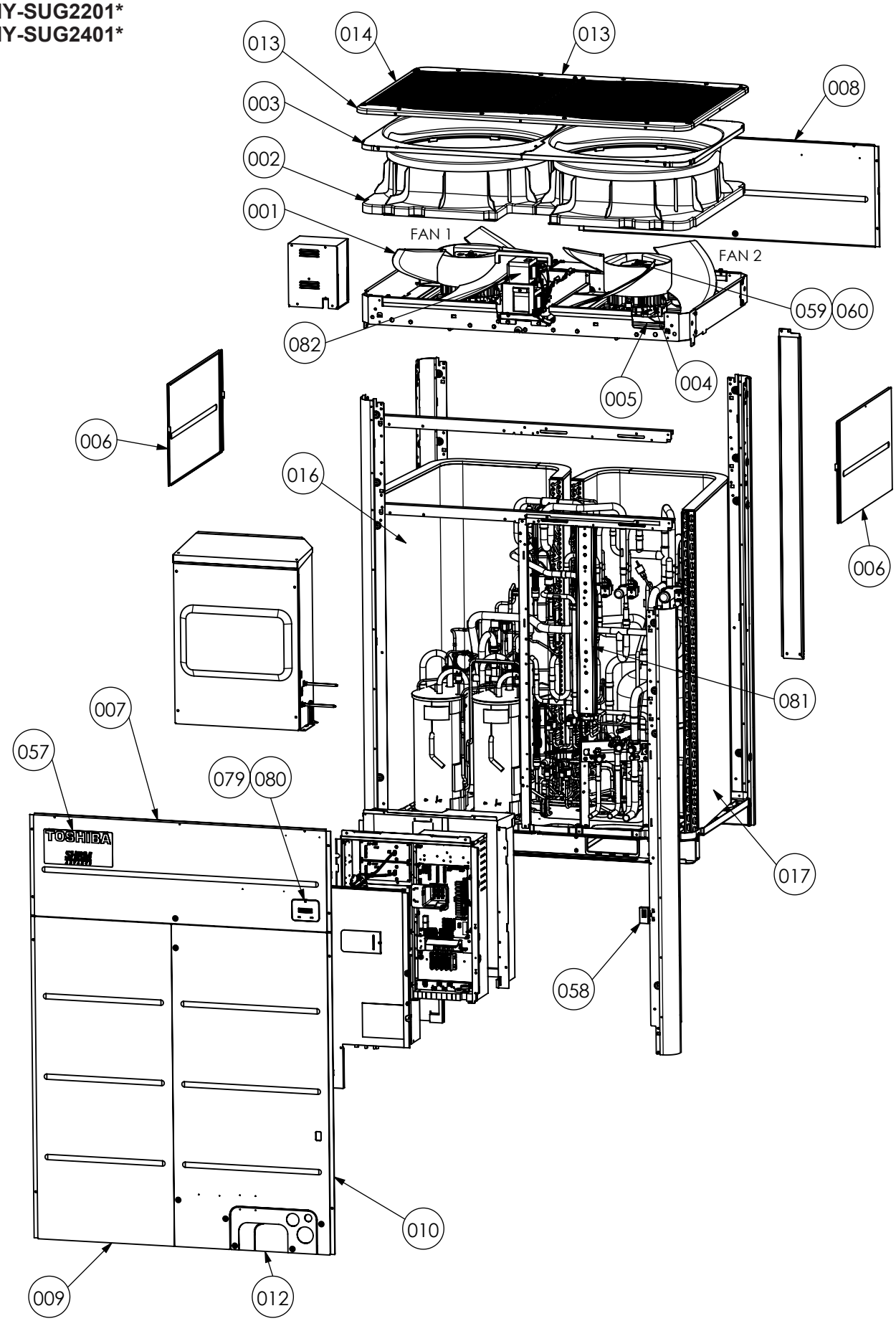
MMY-SUG0801*, MMY-SUG1001*, MMY-SUG1201*, MMY-SUG1401*



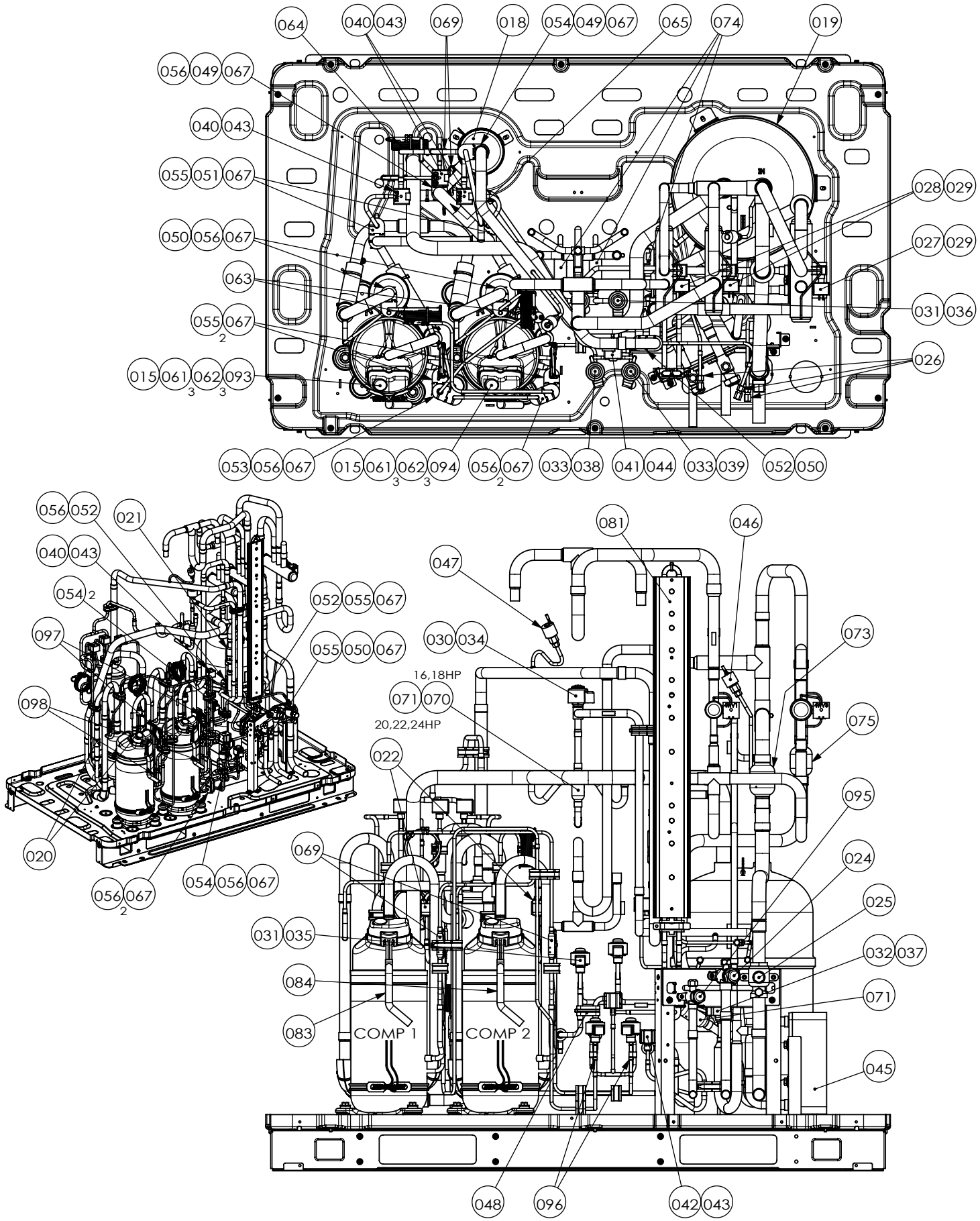
Symbol						
SV						
Solenoid valve	Capillary tube	Check valve	Check joint	Strainer	Temperature sensor	Distributor

15-2. Outdoor unit (16, 18, 20, 22, 24HP)

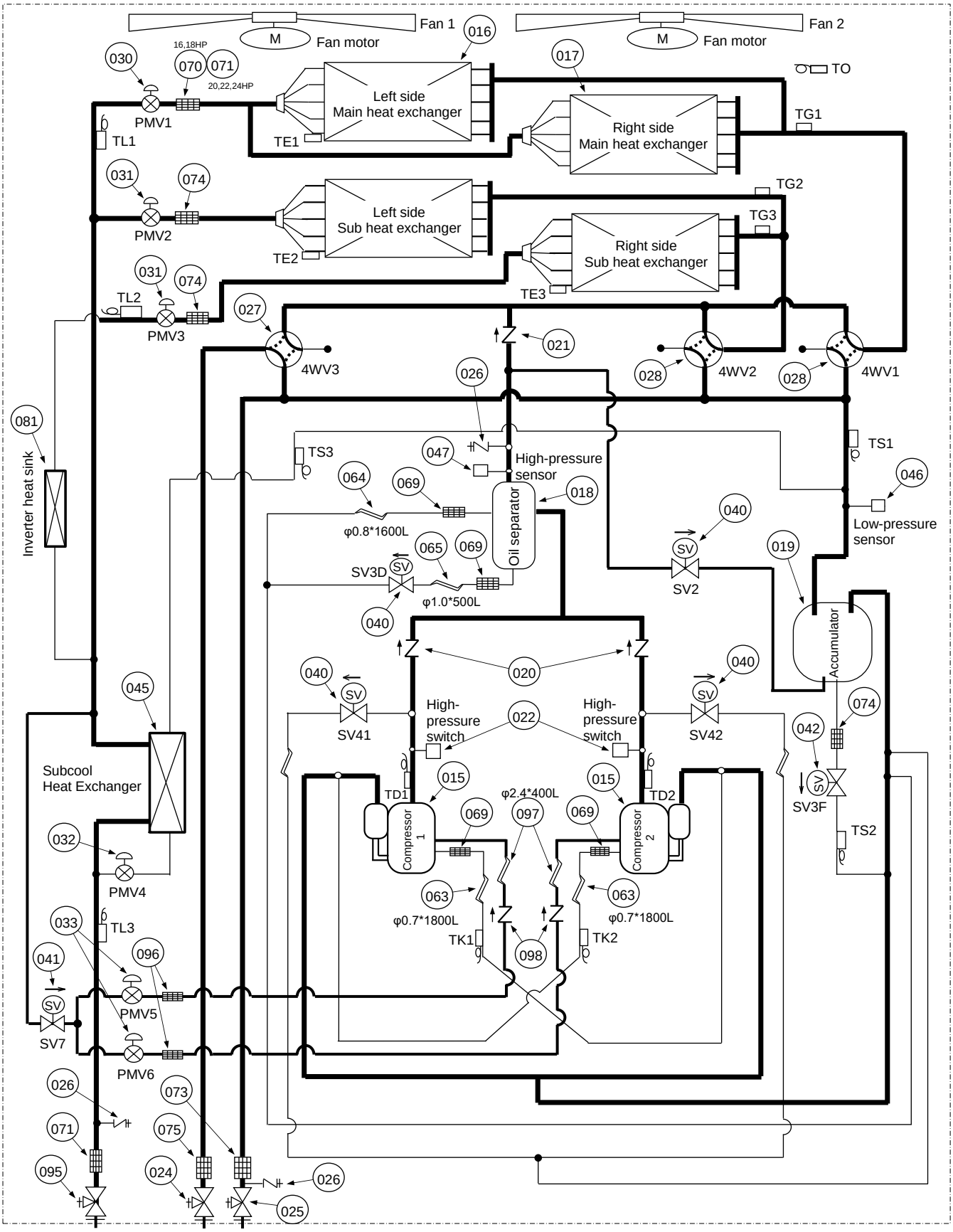
MMY-SUG1601*
MMY-SUG1801*
MMY-SUG2001*
MMY-SUG2201*
MMY-SUG2401*



MMY-SUG1601MT8(J)P-E, MMY-SUG1801MT8(J)P-E, MMY-SUG2001MT8(J)P-E,
MMY-SUG2201MT8(J)P-E, MMY-SUG2401MT8(J)P-E,
MMY-SUG1601MT8P-A, MMY-SUG1801MT8P-A, MMY-SUG2001MT8P-A,
MMY-SUG2201MT8P-A



MMY-SUG1601*, MMY-SUG1801*, MMY-SUG2001*, MMY-SUG2201*, MMY-SUG2401*



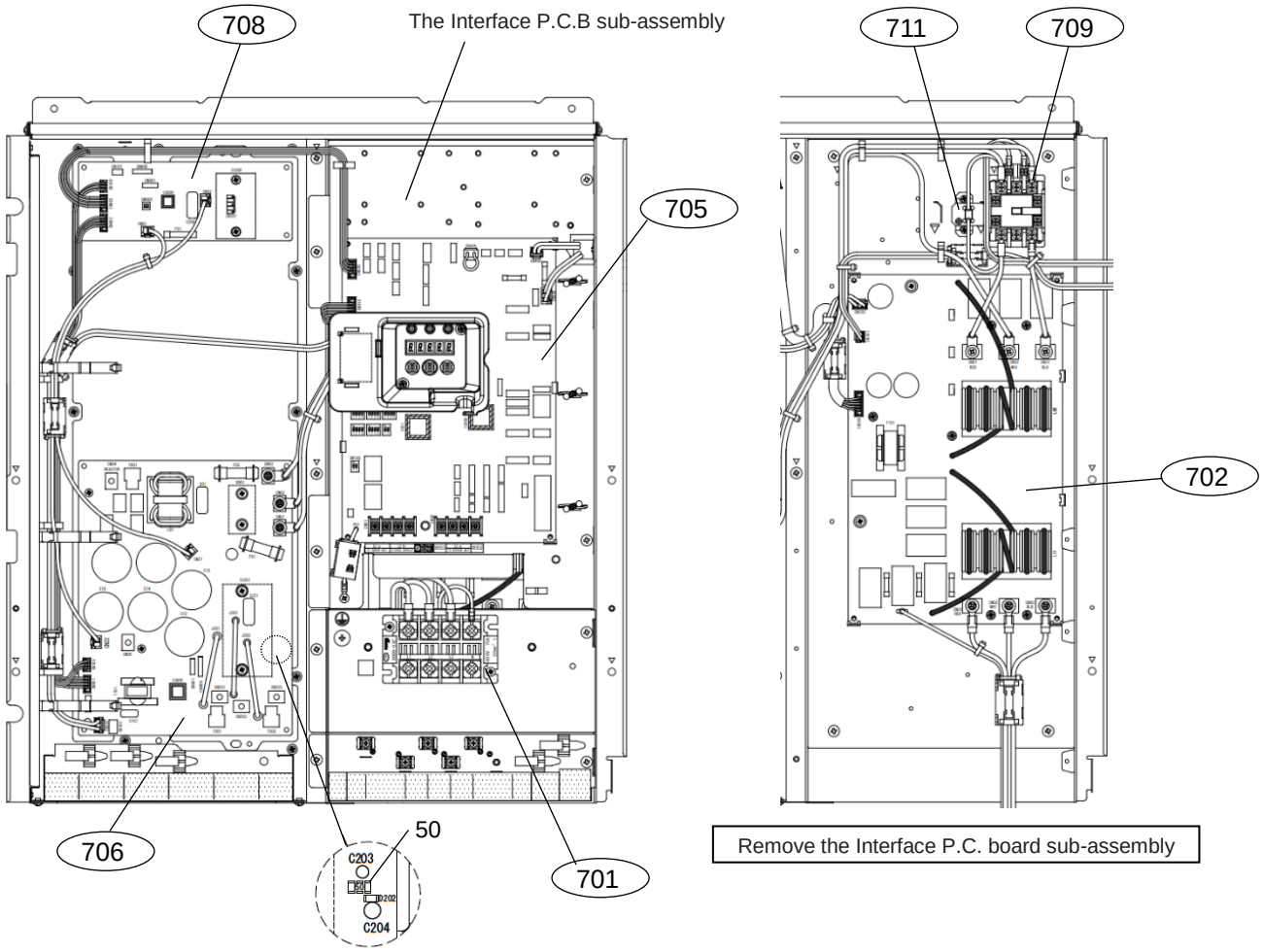
Symbol						
SV						
Solenoid valve	Capillary tube	Check valve	Check joint	Strainer	Temperature sensor	Distributor

Ref. No.	Part No.	Parts Name	Description	Q'ty/Set MMY-SUG								
				0801*	1001*	1201*	1401*	1601*	1801*	2001*	2201*	2401*
001	43T20341	FAN-PR(PS741-T)	FAN,PROPELLER	1	1	1	1					
001	43T20359	FAN-PR(PF581-T)	FAN,PROPELLER					2	2	2	2	2
002	43T19374	BELLMOUTH	BELLMOUTH	1	1	1	1					
002	43T19375	BELLMOUTH	BELLMOUTH					2	2	2	2	2
003	43T19376	COVER-BELLMOUTH	BELLMOUTH,COVER	1	1	1	1					
003	43T19377	COVER-BELLMOUTH	BELLMOUTH,COVER					2	2	2	2	2
004	43T21531	ASM-COAT-FAN-M	MOTOR,FAN,WDF-620B1000-1	1	1	1	1	2	2	2	2	2
005	43T00817	ASM-C-BASE-MOT	MOTOR,BASE	1	1	1	1	2	2	2	2	2
006	43T00913	ASM-HINS(PLATE	CABINET ASSY, SIDE,UP	2	2	2	2	2	2	2	2	2
007	43T00812	ASM-C-CABI-UP	CABIBET,FRONT,UP	1	1	1	1					
007	43T00819	ASM-C-CABI-UP	CABINET,FRONT,UP					1	1	1	1	1
008	43T00914	ASM-HINS(CABI-U	CABINET ASSY, FRONT,UP	1	1	1	1					
008	43T00915	ASM-HINS(CABI-U	CABINET ASSY, FRONT,UP					1	1	1	1	1
009	43T00814	ASM-C-CABI-L	CABINET,FRONT,LEFT	1	1	1	1					
009	43T00815	ASM-C-CABI-L	CABINET,FRONT,LEFT					1	1	1	1	1
010	43T00818	ASM-HINS-CABI-R	CABINET ASSY,FRONT,RIGHT	1	1	1	1	1	1	1	1	1
011	43T00816	ASM-C-PL-SIDE-R	CABINET,RIGHT	1	1	1	1					
012	43T00810	ASM-C-P-SERV	PANEL	1	1	1	1	1	1	1	1	1
013	43T00808	ASM-C-PLATE-UP	CABINET,TOP	2	2	2	2					
013	43T00809	ASM-C-PLATE-UP	CABINET,TOP					2	2	2	2	2
014	43T19378	GUARD-FAN	GUARD,FAN	1	1	1	1					
014	43T19379	GUARD-FAN	GUARD,FAN					2	2	2	2	2
015	43T41580	ASM-COMP-S	COMPRESSOR,LX771A3TJB-20M	1	1	1	1					
015	43T41581	ASM-COMP-S	COMPRESSOR,RX423A3TJB-20M					2	2			
015	43T41582	ASM-COMP-S	COMPRESSOR,LX771A3TJB-20M							2	2	2
016	43T43669	ASM-HE	CONDENSER ASSY,TWO ROW	1	1	1	1					
016	43T43670	ASM-HE-L	CONDENSER ASSY,TWO ROW,LEFT					1	1			
016	43T43671	ASM-HE-L	CONDENSER ASSY,THREE ROW,LEFT							1	1	1
017	43T43672	ASM-HE-R	CONDENSER ASSY,TWO ROW,RIGHT					1	1			
017	43T43673	ASM-HE-R	CONDENSER ASSY,THREE ROW,RIGHT							1	1	1
018	43T48314	ASM-SEPA-OIL	SEPARATOR	1	1	1	1					
018	43T48325	ASM-SEPA-OIL	SEPARATOR					1	1	1	1	1
019	43T48335	ASM-ACCUM-S	ACCUMLATOR	1	1	1	1					
019	43T48336	ASM-ACCUM-S	ACCUMLATOR					1	1	1	1	1
020	43T46445	CHECK-VALVE	VALVE,CHECK,UCV-A1506DRQ5	1	1	1	1					
020	43T46560	CHECK-VALVE	VALVE,CHECK					2	2	2	2	2
021	43T46446	CHECK-VALVE	VALVE,CHECK,UCV-A1507DR					1	1	1	1	1
022	43T63388	SW-PRESS	SWITCH,PRESSURE	1	1	1	1	2	2	2	2	2
023	43T46542	PACKED-VALVE	VALVE,PACKED,12.7	1	1	1	1					
024	43T46544	PACKED-VALVE	VALVE,PACKED,19.05	1	1	1	1	1	1	1	1	1
025	43T46393	VALVE-BALL	VALVE,BALL,25.4	1	1	1	1	1	1	1	1	1
026	43T46409	JOINT-CHECK	JOINT,CHECK	3	3	3	3	3	3	3	3	3
027	43T46452	VALVE-4WAY	VALVE,4WAY,SHF-35B-67-04	1	1	1	1	1	1	1	1	1
028	43T46549	VALVE-4WAY	VALVE,4WAY,SHF-20D-46-02	2	2	2	2	2	2	2	2	2
029	43T46550	COIL-V-4WAY	COIL,SOLENOID,AC220V-240 50Hz	3	3	3	3	3	3	3	3	3
030	43T46447	BODY-PMV	VALVE,PMV,PAM-BA2YGTF-1(DIA4.8)	1	1	1	1	1	1	1	1	1
031	43T46538	BODY-PMV	VALVE,PMV,DPF(TS1)2.8C-01,(DIA2.8)	1	1	1	1	2	2	2	2	2
032	43T46439	BODY-PMV	VALVE,PMV,UKV-18D64(DIA1.8)	1	1	1	1	1	1	1	1	1
033	43T46469	BODY-PMV	VALVE,PMV,DPF(T01)1.5C-04(DIA1.5)	1	1	1	1	2	2	2	2	2
034	43T46525	COIL-PMV	COIL,PMV	1	1	1	1	1	1	1	1	1
035	43T46551	COIL-PMV	COIL,PMV	1	1	1	1	1	1	1	1	1
036	43T46553	COIL-PMV	COIL,PMV					1	1	1	1	1
037	43T46451	COIL-PMV	COIL,PMV	1	1	1	1					
038	43T46554	COIL-PMV	COIL,PMV	1	1	1	1					
039	43T46555	COIL-PMV	COIL,PMV					1	1	1	1	1
040	43T46408	VALVE-2WAY	VALVE,2WAY,FDF2A88	3	3	3	3	4	4	4	4	4
041	43T46527	VALVE-2WAY	VALVE,2WAY,TEV-S1920DQ50	1	1	1	1	1	1	1	1	1
042	43T46552	VALVE-2WAY	VALVE,2WAY,FDF2A75	1	1	1	1	1	1	1	1	1
043	43T46528	ASM-2WAY-COIL-S	COIL ASSY,VALVE,2WAY,FQ-A0522G-001990	4	4	4	4	5	5	5	5	5
044	43T46530	COIL-V-2WAY	COIL,VALVE,2WAY,TEV-SMOAJ2170B1	1	1	1	1	1	1	1	1	1
045	43T43674	ASM-S-HE(SC)	SUBCOOL HEATEXCHANGER,ACH16-22H-F	1	1	1	1					
045	43T43675	ASM-S-HE(SC)	SUBCOOL HEATEXCHANGER,ACH16-30H-F					1	1	1	1	1
046	43T50401	ASM-P-SENSOR-S	SENSOR ASSY,LOW PRESSURE	1	1	1	1	1	1	1	1	1
047	43T50402	ASM-P-SENSOR-S	SENSOR ASSY,HIGH PRESSURE	1	1	1	1	1	1	1	1	1
048	43T49347	RUB-P-SUPPORTER	RUBBER,SUPPORTER,PIPE					1	1	1	1	1
049	43T49348	RUB-P-SUPPORTER	RUBBER,SUPPORTER,PIPE	2	2	2	2	2	2	2	2	2
050	43T49349	RUB-P-SUPPORTER	RUBBER,SUPPORTER,PIPE					4	4	4	4	4

Ref. No.	Part No.	Parts Name	Description	Q'ty/Set MMY-SUG								
				0801*	1001*	1201*	1401*	1601*	1801*	2001*	2201*	2401*
051	43T49350	RUB-P-SUPPORTER	RUBBER,SUPPORTER,PIPE	4	4	4	4	2	2	2	2	2
052	43T49351	RUB-P-SUPPORTER	RUBBER,SUPPORTER,PIPE					3	3	3	3	3
053	43T49352	RUB-P-SUPPORTER	RUBBER,SUPPORTER,PIPE	5	5	5	5	1	1	1	1	1
054	43T49353	RUB-P-SUPPORTER	RUBBER,SUPPORTER,PIPE	4	4	4	4	4	4	4	4	4
055	43T49354	RUB-P-SUPPORTER	RUBBER,SUPPORTER,PIPE	4	4	4	4	8	8	8	8	8
056	43T49355	RUB-P-SUPPORTER	RUBBER,SUPPORTER,PIPE	7	7	7	7	10	10	10	10	10
057	43T01341	MARK-T(SHRM-A)	MARK,TOSHIBA	1	1	1	1	1	1	1	1	1
058	43T19380	HOLDER-SENSOR	HOLDER,SENSOR	1	1	1	1	1	1	1	1	1
059	43T39351	NUT-FLANGE	NUT,FLANGE	1	1	1	1	2	2	2	2	2
060	43T39350	SQUARE-WASHER	WASHER	1	1	1	1	2	2	2	2	2
061	43T49357	RUB-VINS	RUBBER,CUSHION	3	3	3	3	6	6	6	6	6
062	43T47385	BOLT-COMP(M6)	BOLT,COMPRESSOR	3	3	3	3	6	6	6	6	6
063	43T47419	CAPI	TUBE,CAPILLARY,ID 0.7	1	1	1	1	1	1	1	1	1
064	43T47374	CAPI	TUBE,CAPILLARY,ID 0.8	1	1	1	1	1	1	1	1	1
065	43T47375	CAPI	TUBE,CAPILLARY,ID 1.0	1	1	1	1	1	1	1	1	1
066	43T19333	FIX-P-SENSOR	SENSOR,FIXATIVE,PLATE	12	12	12	12	17	17	17	17	17
067	43T49358	FIX-BAND	BAND,FIX	8	8	8	8	14	14	14	14	14
068	43T85894	COPY-MANUAL(MT8P-E)	OWNERS MANUAL for MT8P-E	1	1	1	1	1	1	1	1	1
068	43T85895	COPY-MANUAL(MT8P-A)	OWNERS MANUAL for MT8P-A	1	1	1	1	1	1	1	1	1
069	43T47388	STRAINER	STRAINER	3	3	3	3	4	4	4	4	4
070	43T47390	STRAINER	STRAINER	2	2	2	2	1	1			
071	43T47392	STRAINER	STRAINER					1	1	2	2	2
072	43T47394	STRAINER	STRAINER	1	1	1	1	1	1	1	1	1
073	43T47395	STRAINER	STRAINER					1	1	1	1	1
074	43T47414	STRAINER	STRAINER	1	1	1	1	3	3	3	3	3
075	43T47420	STRAINER	STRAINER	1	1	1	1	1	1	1	1	1
076	43T47421	STRAINER	STRAINER	1	1	1	1					
077	43T48329	ASM-SCREW-S	SCREW,SET	1	1	1	1	1	1	1	1	1
078	43T48330	ASM-SCREW-S	SCREW,SET	1	1	1	1	1	1	1	1	1
079	43TN9923	ASM-NFC	PC BOARD ASSY,NFC	1	1	1	1	1	1	1	1	1
080	43T63389	HOLDER(NFC)	HOLDER,NFC,MCC-1667	1	1	1	1	1	1	1	1	1
081	43T67314	ASM-HEATSINK	HEATSINK,ASSY	1	1	1	1	1	1	1	1	1
081	43T67312	ASM-HEATSINK	HEATSINK,ASSY					1	1	1	1	1
082	43T58346	REACTOR(CH-105)	REACTOR,CH-105	1	1	1	1			2	2	2
082	43T58347	REACTOR(CH-106)	REACTOR,CH-106					2	2			
083	43T60534	ASM-COMP-LEAD	LEAD,ASSY,COMPRESSOR							1	1	1
083	43T60577	ASM-COMP-LEAD	LEAD,ASSY,COMPRESSOR					1	1			
084	43T60535	ASM-COMP-LEAD	LEAD ASSY,COMPRESSOR	1	1	1	1			1	1	1
084	43T60576	ASM-COMP-LEAD	LEAD,ASSY,COMPRESSOR					1	1			
085	43T55375	CLAMP-FILTER	FILTER,CLAMP	2	2	2	2	4	4	4	4	4
086	43T50424	TC-SENSOR	SENSOR ,SERVICE, TO	1	1	1	1	1	1	1	1	1
087	43T50430	TC-SENSOR	SENSOR ,SERVICE, TS2	1	1	1	1	1	1	1	1	1
088	43T50403	ASM-SENSOR	SENSOR ASSY,SERVICE, TD1,TK1	1	1	1	1	1	1	1	1	1
089	43T50404	ASM-SENSOR	SENSOR ASSY,SERVICE, TD2,TK2					1	1	1	1	1
090	43T50405	ASM-SENSOR	SENSOR ASSY,SERVICE, TE1,TE2,TG1,TG2	1	1	1	1	1	1	1	1	1
091	43T50406	ASM-SENSOR	SENSOR ASSY,SERVICE, TE3,TG3					1	1	1	1	1
092	43T50407	ASM-SENSOR	SENSOR ASSY,SERVICE, TL1,TL2,TL3,TS1,TS3	1	1	1	1	1	1	1	1	1
093	43T57316	ASM-HEATER	HEATER,CASE,ASSY,29W/240V, 2200L	1	1	1	1	1	1	1	1	1
094	43T57317	ASM-HEATER	HEATER,CASE,ASSY,29W/240V, 1900L					1	1	1	1	1
095	43T46543	PACKEDVALVE	VALVE,PACKED,15.88					1	1	1	1	1
096	43T47425	ASM-P-NET	PIPE,MESH	1	1	1	1	2	2	2	2	2
097	43T47426	CAPI	TUBE,CAPILLARY,ID 2.4	1	1	1	1	2	2	2	2	2
098	43T46400	CHECK-VALVE	VALVE,CHECK	1	1	1	1	2	2	2	2	2

Inverter Assembly

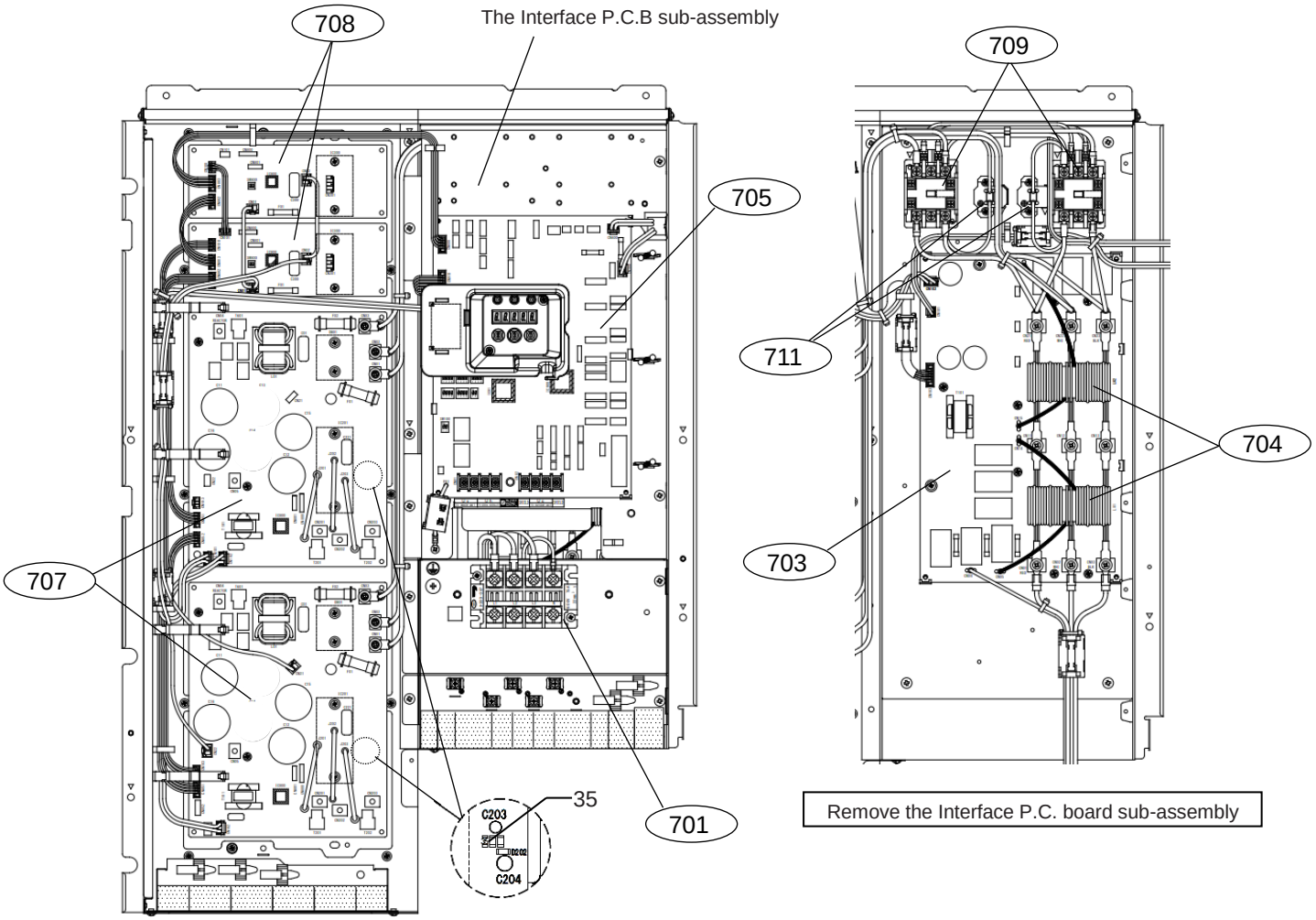
Model: MMY-SUG0801*, 1001*, 1201*, 1401*



Location No.	Part No.	Description	Q'ty/Set
701	43T60437	Power supply terminal block	1
702	43T6W888	Noise Filter P.C. board (1)	1
705	43TN9689	Interface P.C. board	1
706	43TN9690	Inverter P.C. board for Compressor (1)	1
708	43T6W894	Inverter P.C. board for fan	1
709	43T52320	Magnet Contactor	1
711	43T50345	PTC Thermistor	1

Inverter Assembly

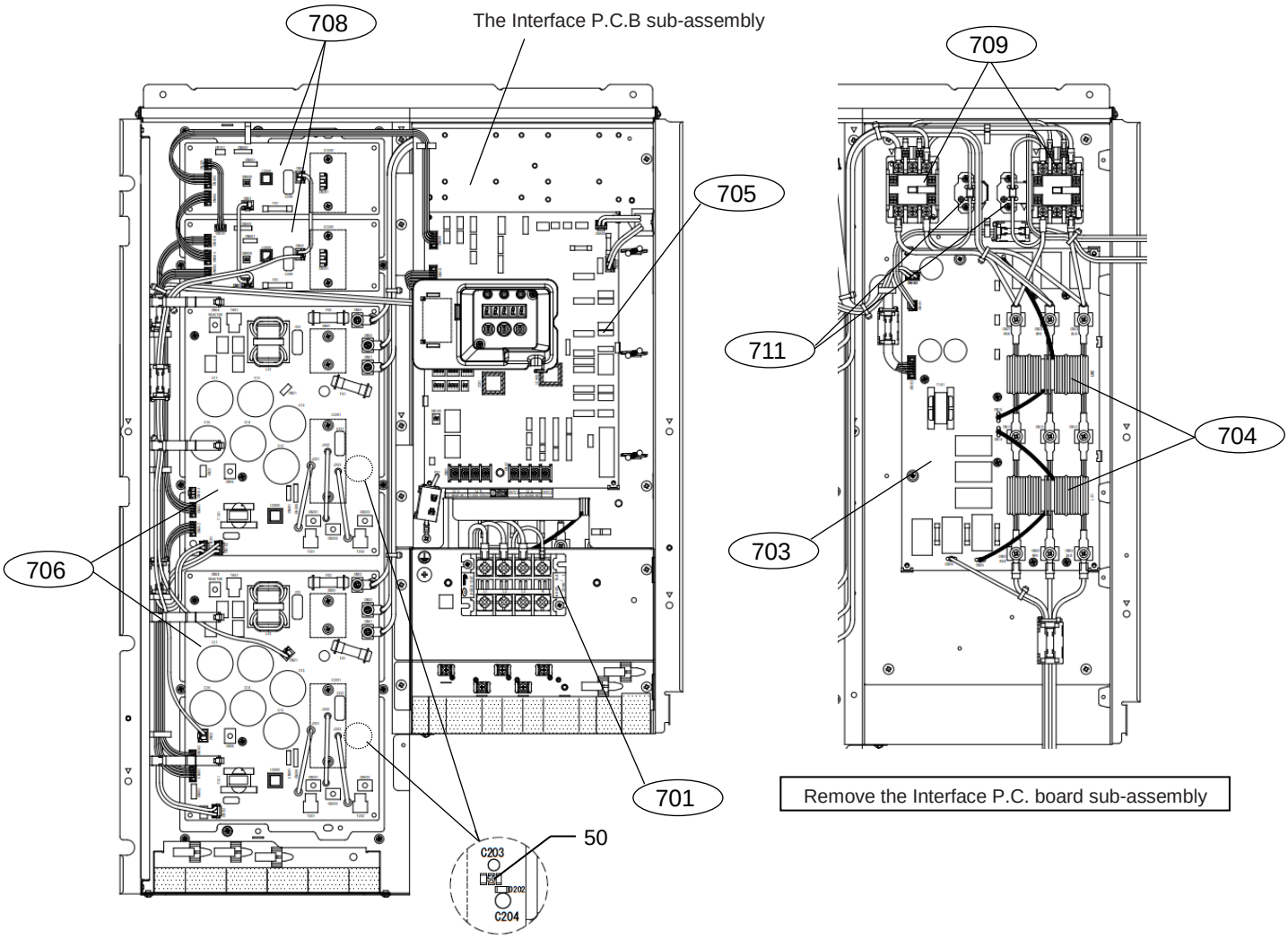
Model: MMY-SUG1601*, 1801*



Location No.	Part No.	Description	Q'ty/Set
701	43T60437	Power supply terminal block	1
703	43T6W888	Noise Filter P.C. board (2)	1
704	43T55376	FILTER, LINE	2
705	43TN9689	Interface P.C. board	1
707	43TN9521	Inverter P.C. board for Compressor (2)	2
708	43T6W894	Inverter P.C. board for fan	2
709	43T52320	Magnet Contactor	2
711	43T50345	PTC Thermistor	2

Inverter Assembly

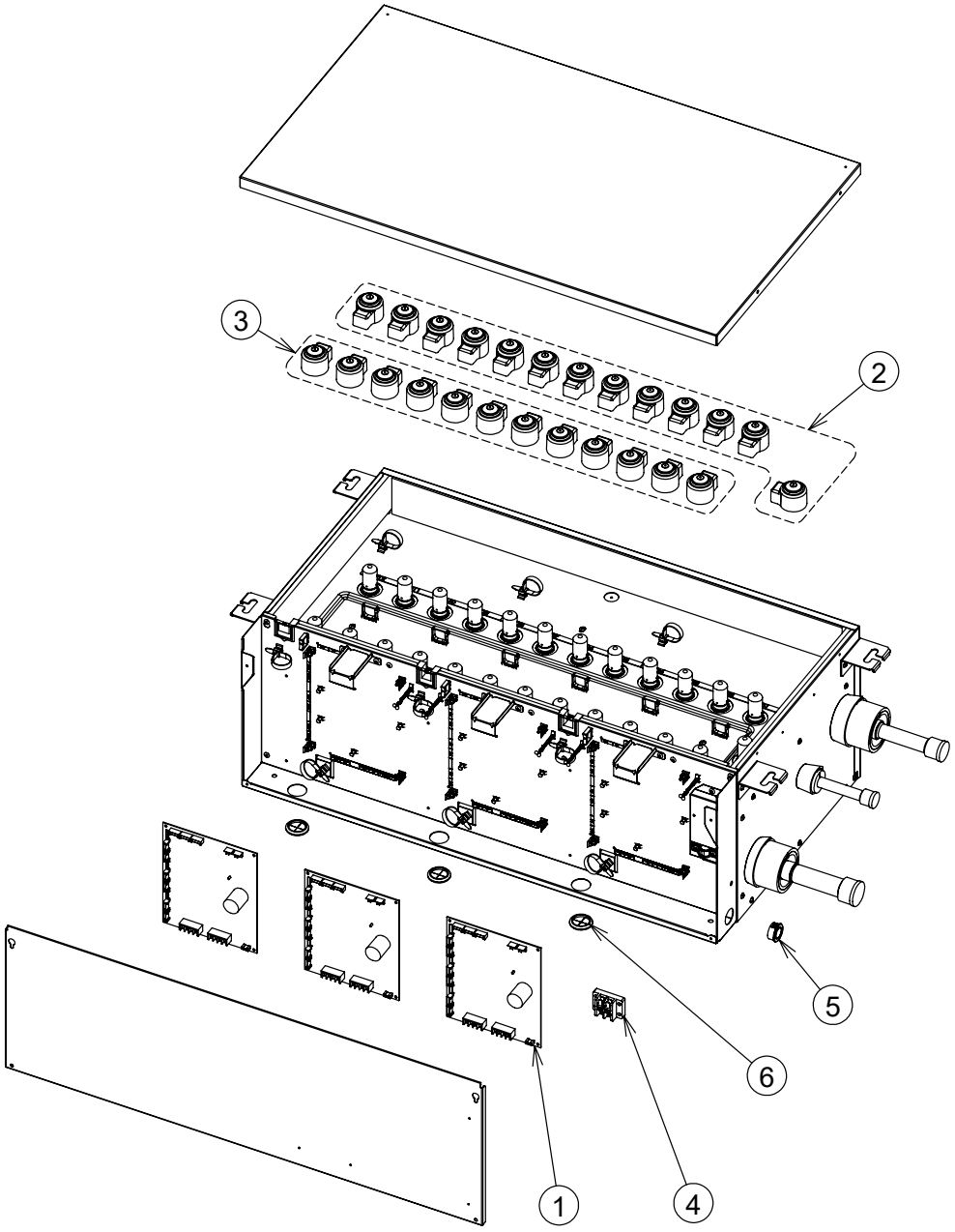
Model: MMY-SUG2001*, 2201*, 2401*



Location No.	Part No.	Description	Q'ty/Set
701	43T60437	Power supply terminal block	1
703	43T6W888	Noise Filter P.C. board (2)	1
704	43T55376	FILTER, LINE	2
705	43TN9689	Interface P.C. board	1
706	43TN9690	Inverter P.C. board for Compressor (1)	2
708	43T6W894	Inverter P.C. board for fan	2
709	43T52320	Magnet Contactor	2
711	43T50345	PTC Thermistor	2

15-3. Flow Selector unit Multi-port type

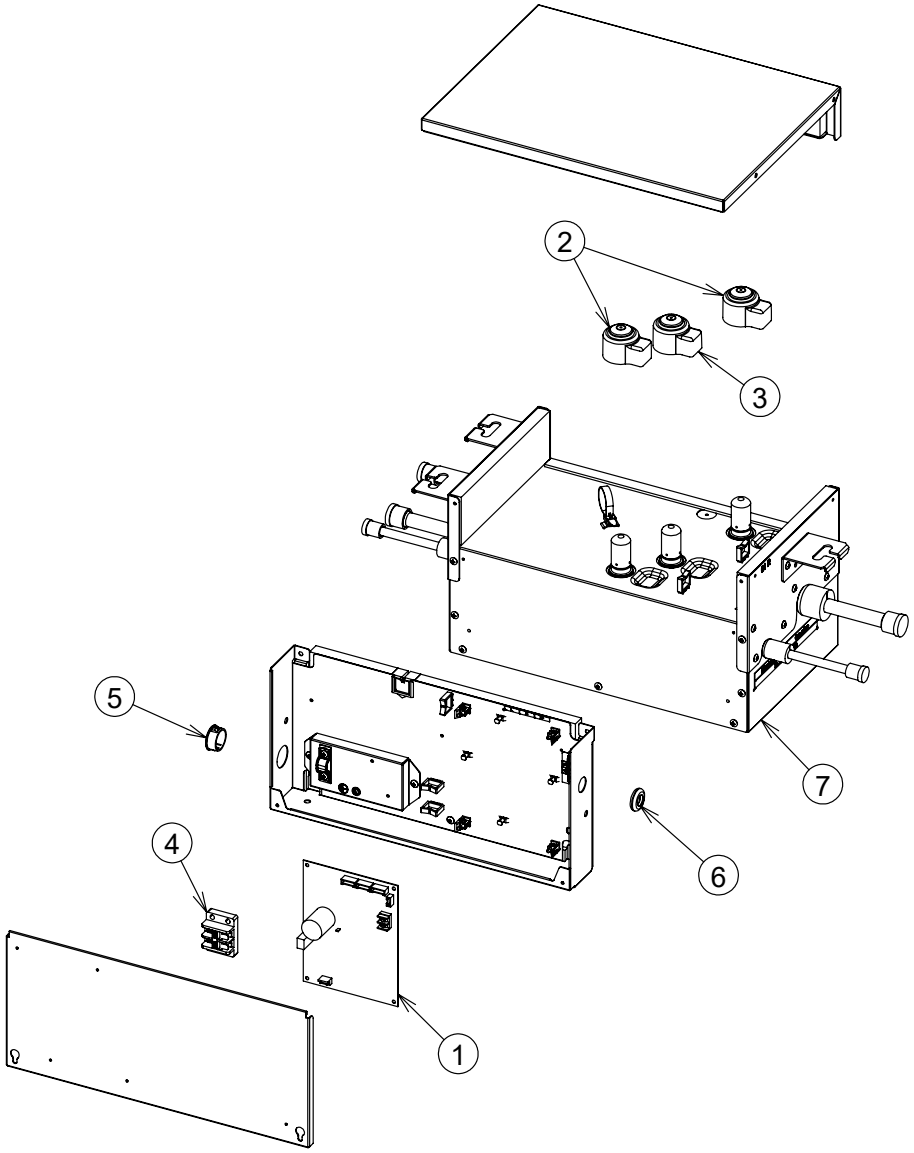
Model: RBM-Y1801FU4PE, RBM-Y1801FU8PE, RBM-Y1801FU12PE



Location No.	Part No.	Description	RBM-Y1801***		
			FU4PE	FU8PE	FU12PE
1	43TN9649	PC BOARD ASSY, MCC-1770	1	2	3
2	43T46546	COIL, PMV, PAM-MD12TF-305	5	9	13
3	43T46547	COIL, PMV, PAM-MD12TF-306	4	8	12
4	43T60592	SERV-TERMINAL	1	1	1
5	43T96310	BUSHING	1	1	1
6	43T96311	BUSHING	1	2	3

15-4. Flow Selector unit Single-port type

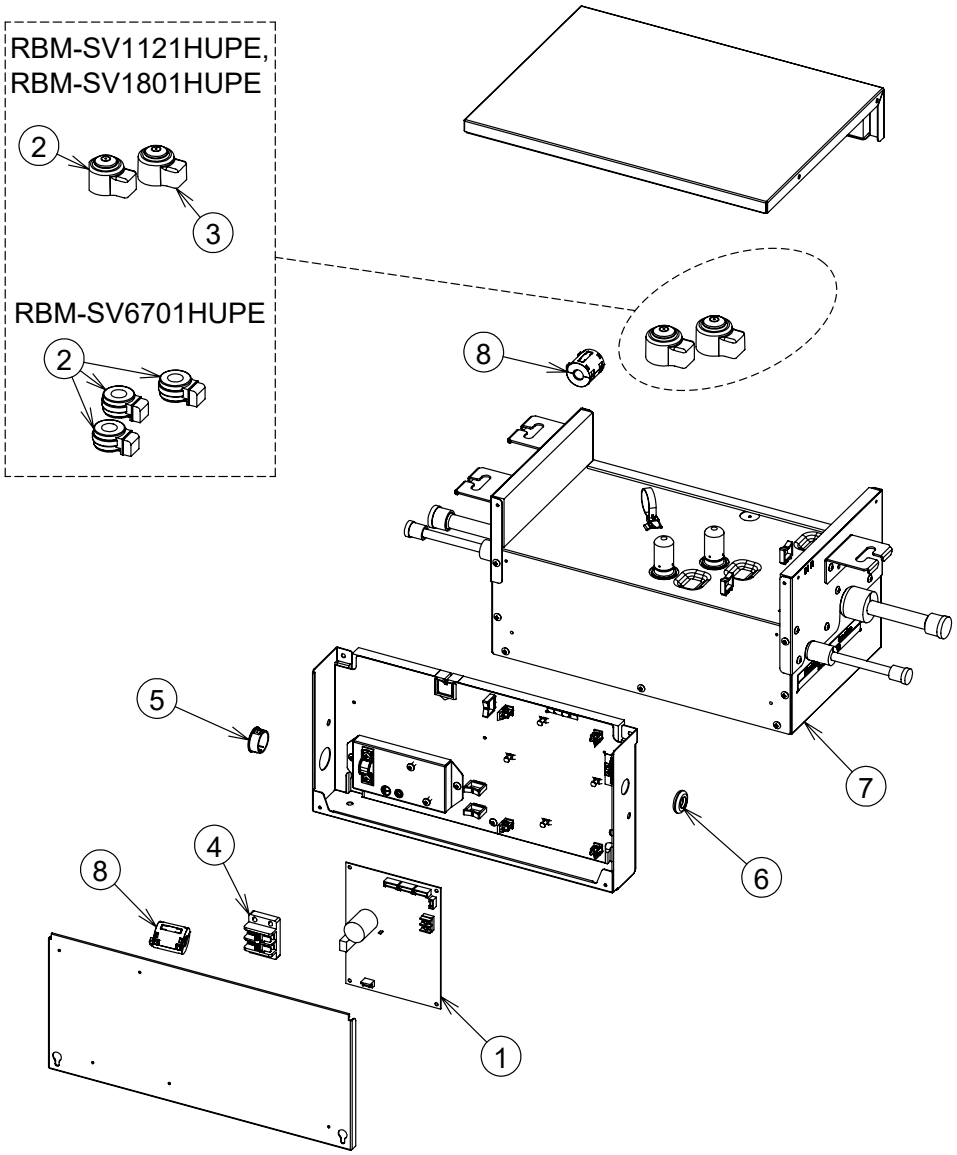
Model: RBM-Y1121FUPE, RBM-Y1801FUPE, RBM-Y2801FUPE



Location No.	Part No.	Description	RBM-Y****FUPE		
			1121	1801	2801
1	43TN9650	PC BOARD ASSY, MCC-1771	1	1	1
2	43T46546	COIL, PMV, PAM-MD12TF-305	2	2	2
3	43T46548	COIL, PMV, PAM-MD12TF-306	1	1	1
4	43T60592	SERV-TERMINAL	1	1	1
5	43T96310	BUSHING	1	1	1
6	43T96309	BUSHING	1	1	1
7	43T00904	BODY ASSY, SERVICE	1		
7	43T00905	BODY ASSY, SERVICE		1	
7	43T00906	BODY ASSY, SERVICE			1

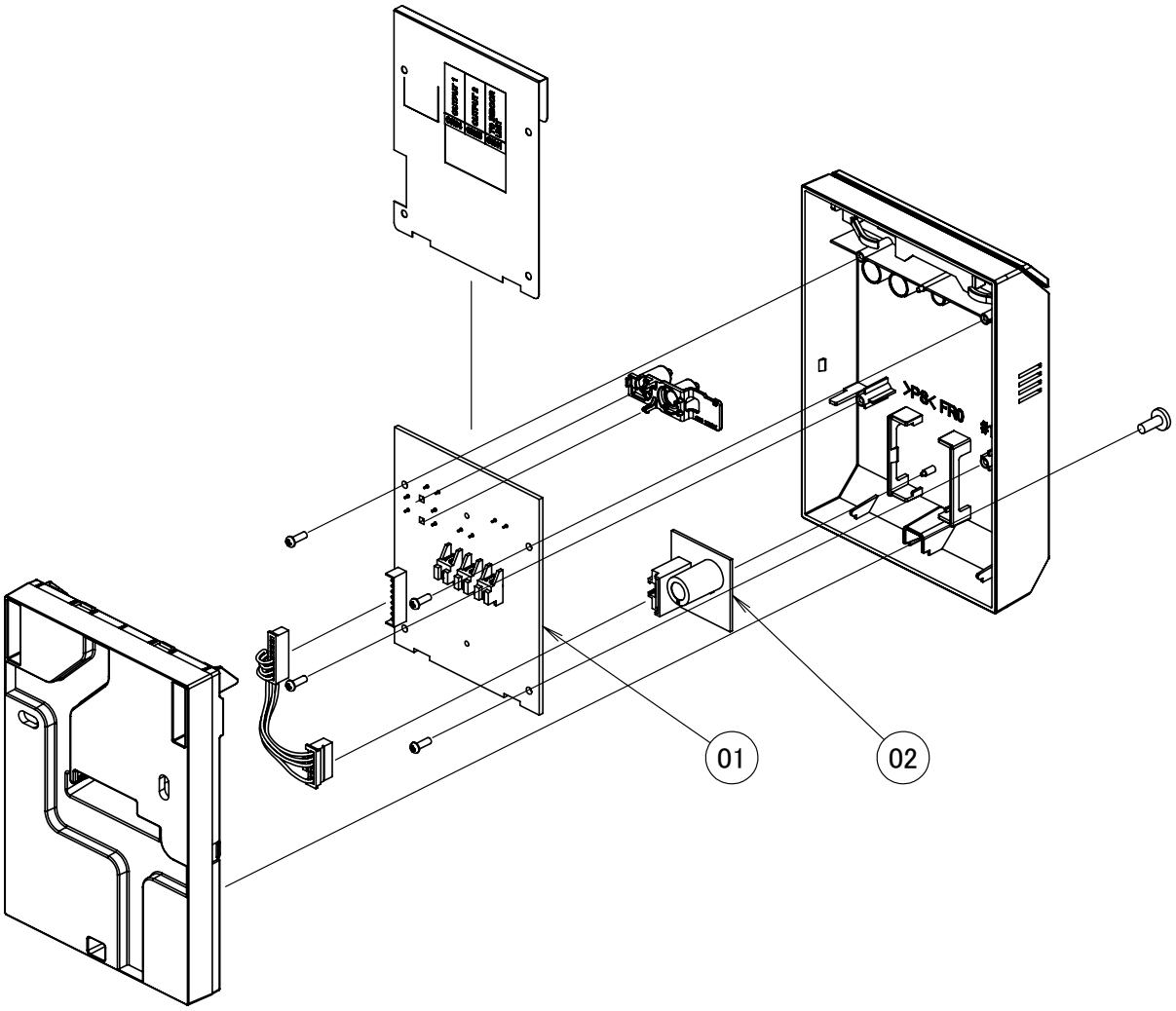
15-5. Shut-off Valve unit

Model: RBM-SV1121HUPE, RBM-SV1801HUPE, RBM-SV6701HUPE



Location No.	Part No.	Description	RBM-SV****HUPE		
			1121	1801	6701
1	43TN9650	PC BOARD ASSY, MCC-1771	1	1	
1	43TN9651	PC BOARD ASSY, MCC-1771			1
2	43T46546	COIL, PMV, PAM-MD12TF-305	1	1	
2	43T46547	COIL, PMV, PQ-M10012-000231			3
3	43T46548	COIL, PMV, PAM-MD12TF-306	1	1	
4	43T60592	SERV-TERMINAL	1	1	1
5	43T96310	BUSHING	1	1	1
6	43T96309	BUSHING	1	1	1
7	43T00907	BODY ASSY, SERVICE	1		
7	43T00908	BODY ASSY, SERVICE		1	
7	43T00909	BODY ASSY, SERVICE			1
8	43T55375	FILTER, NOISE			2

15-6. Leak Detector
Model : TCB-LD1UPE



Location No.	Part No.	Description	Q'ty / Set
001	43TN9744	PC BOARD ASSY	1
002	43T50431	R32 SENSING MODULE	1

Toshiba Carrier (Thailand) Co., Ltd.

144 / 9 Moo 5, Bangkadi Industrial Park, Tivanon Road, Tambol Bangkadi, Amphur Muang, Pathumthani 12000, Thailand